5.
Semi-Automatic Batching with Batch Controllers

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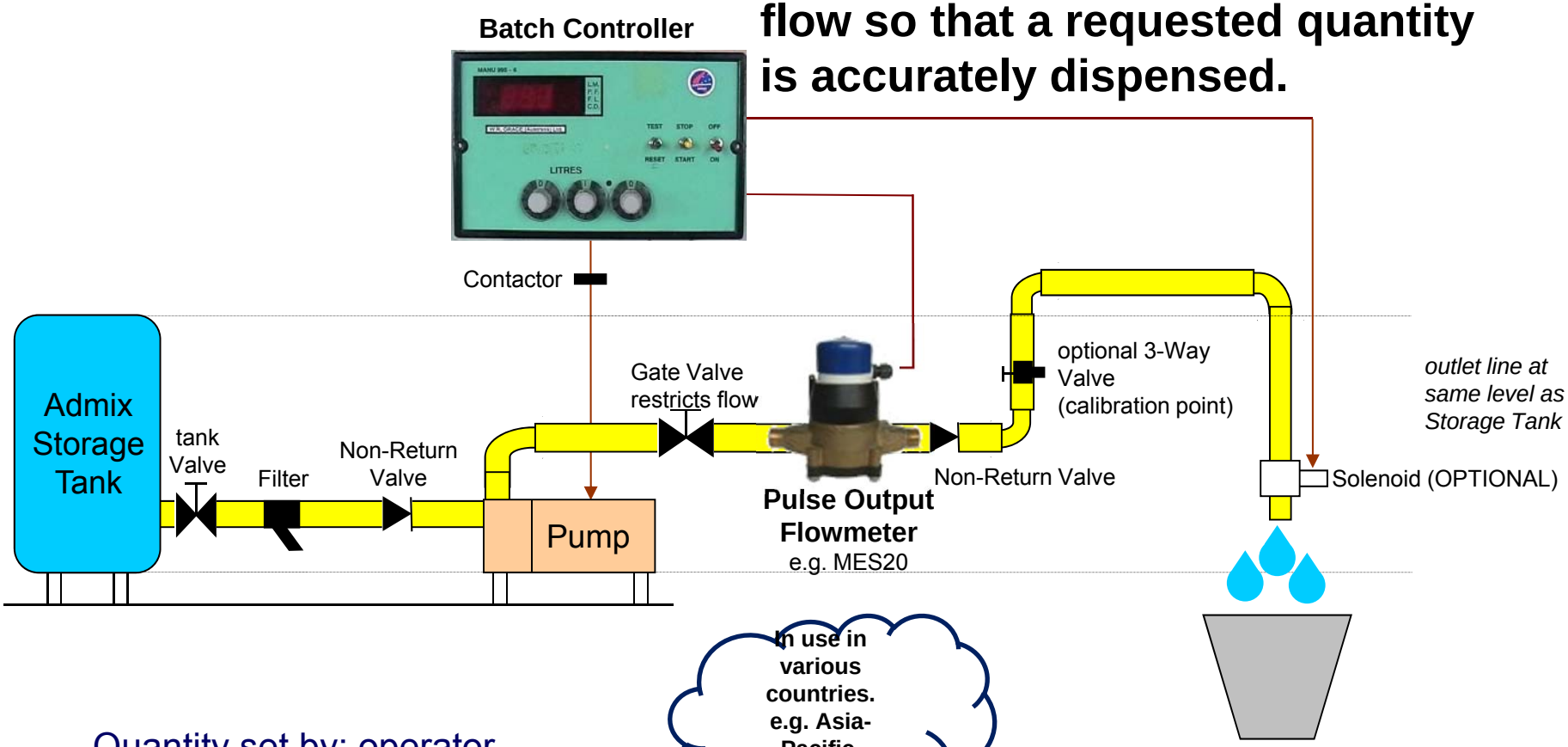
Semi-Automatic Batching

Batch Controller starts and stops flow so that a requested quantity is accurately dispensed.



In use in various countries. e.g. Asia-Pacific, South America, Middle-East

Quantity set by: operator
Delivery controlled by: batch controller

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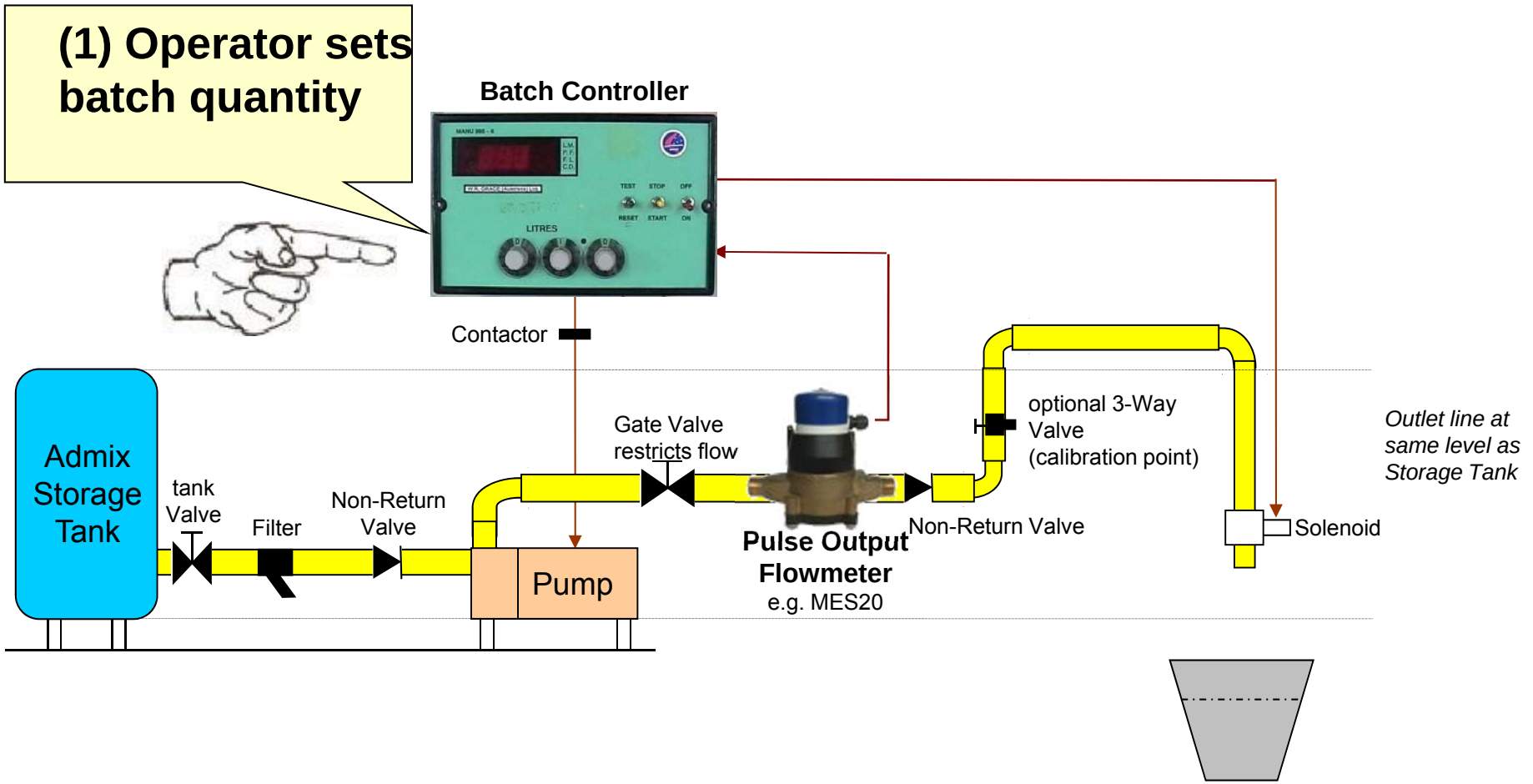
Semi-Automatic Batching



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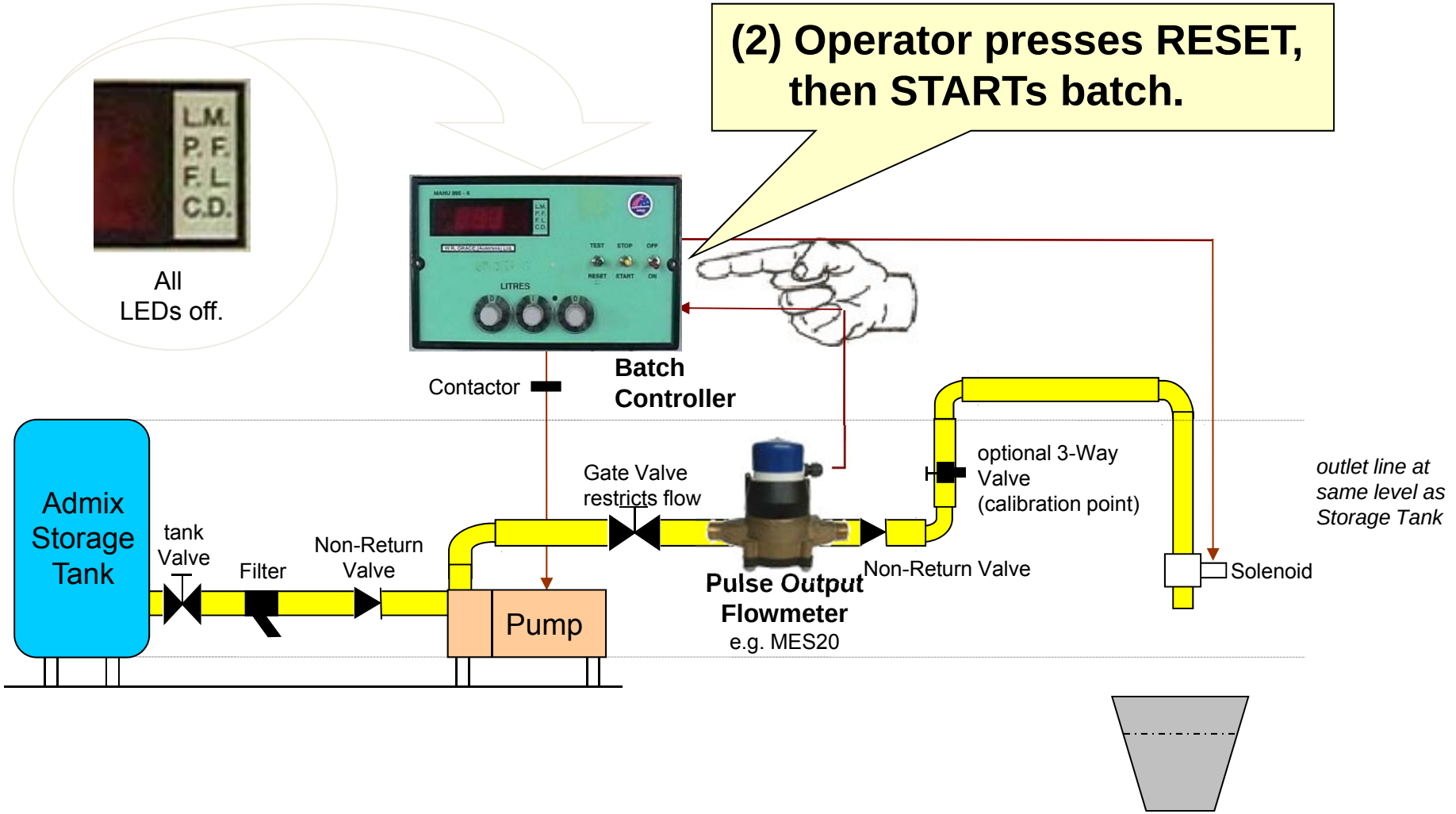
Semi-Automatic Batching



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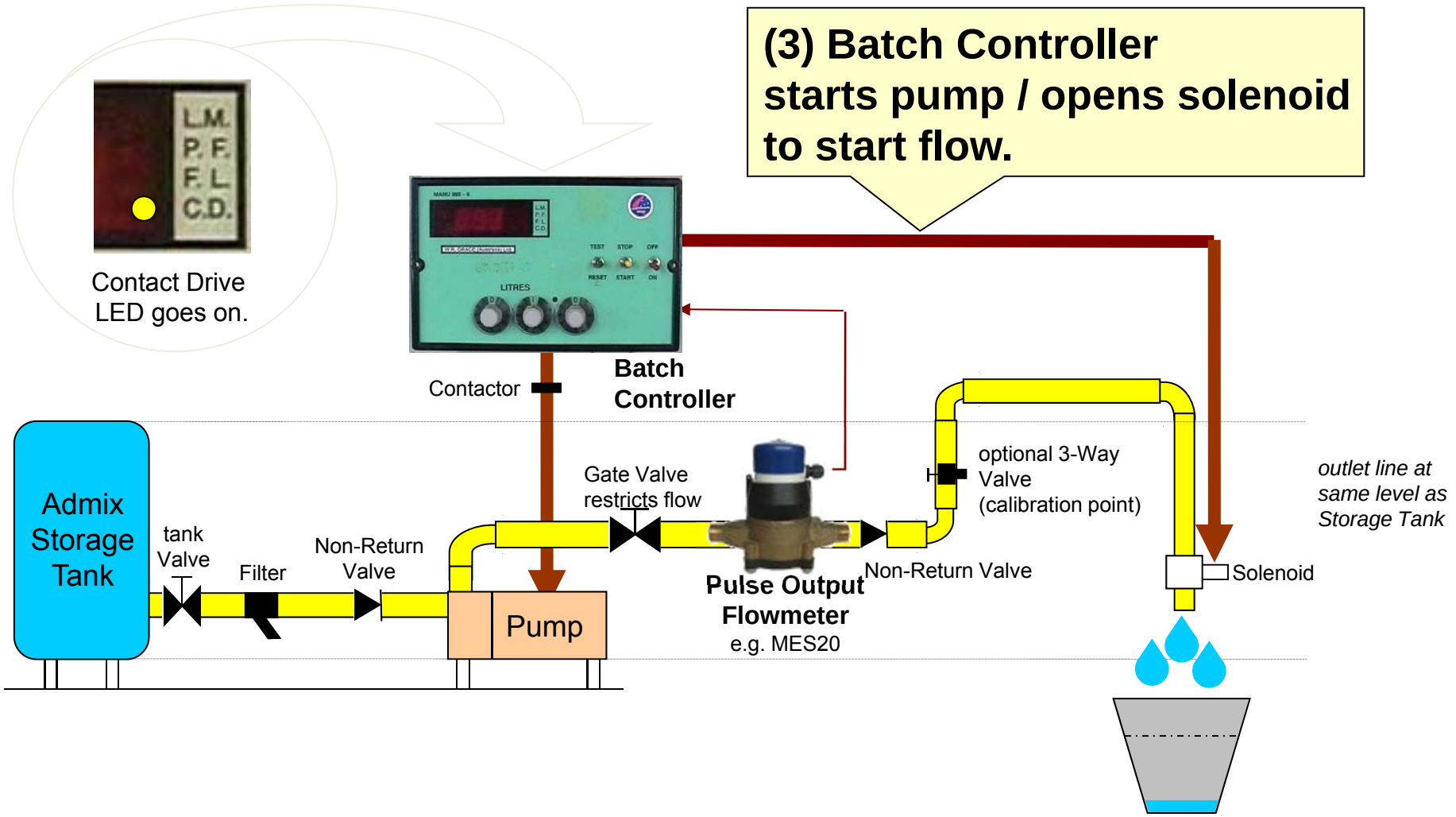
Semi-Automatic Batching



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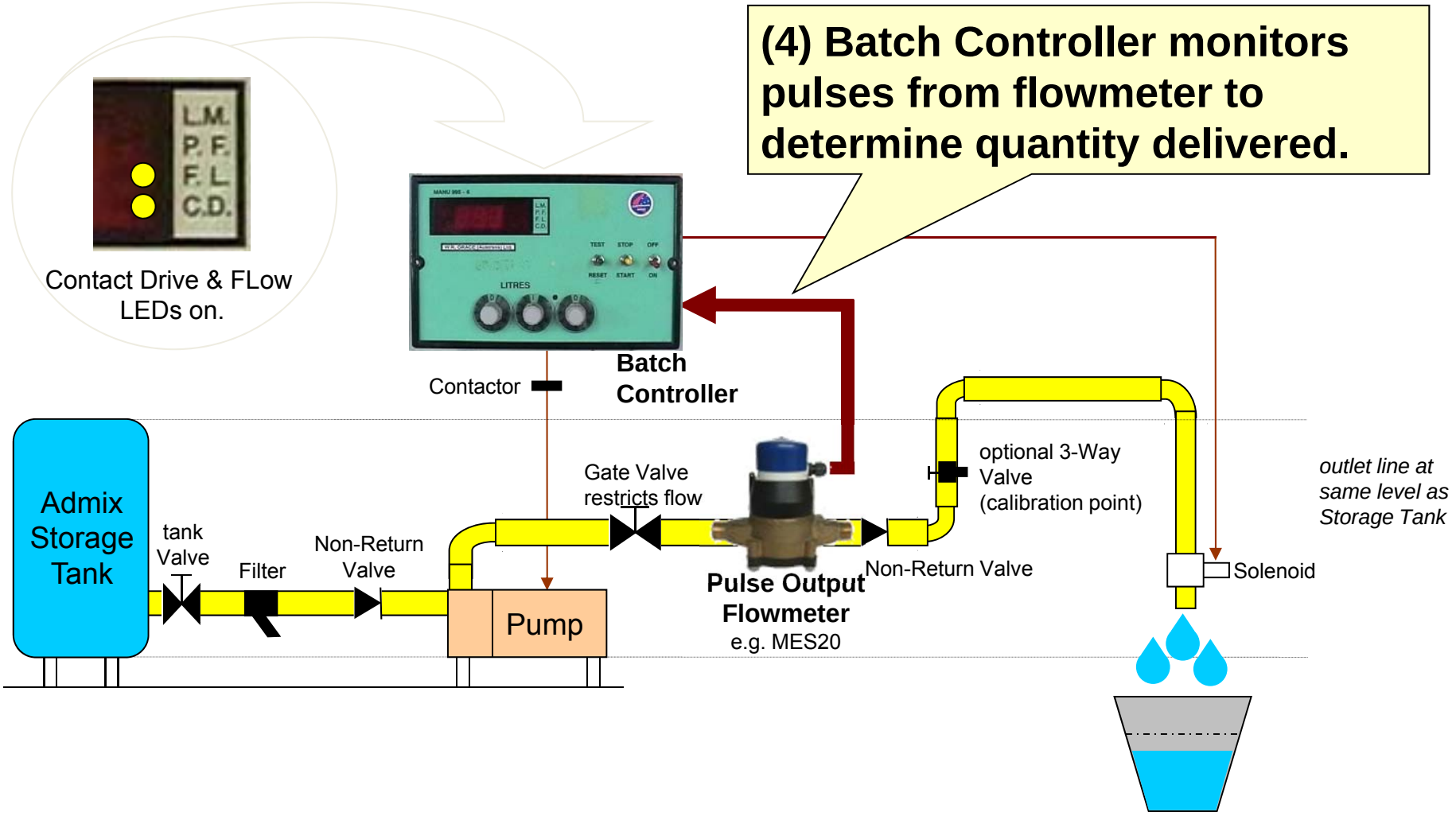
Semi-Automatic Batching



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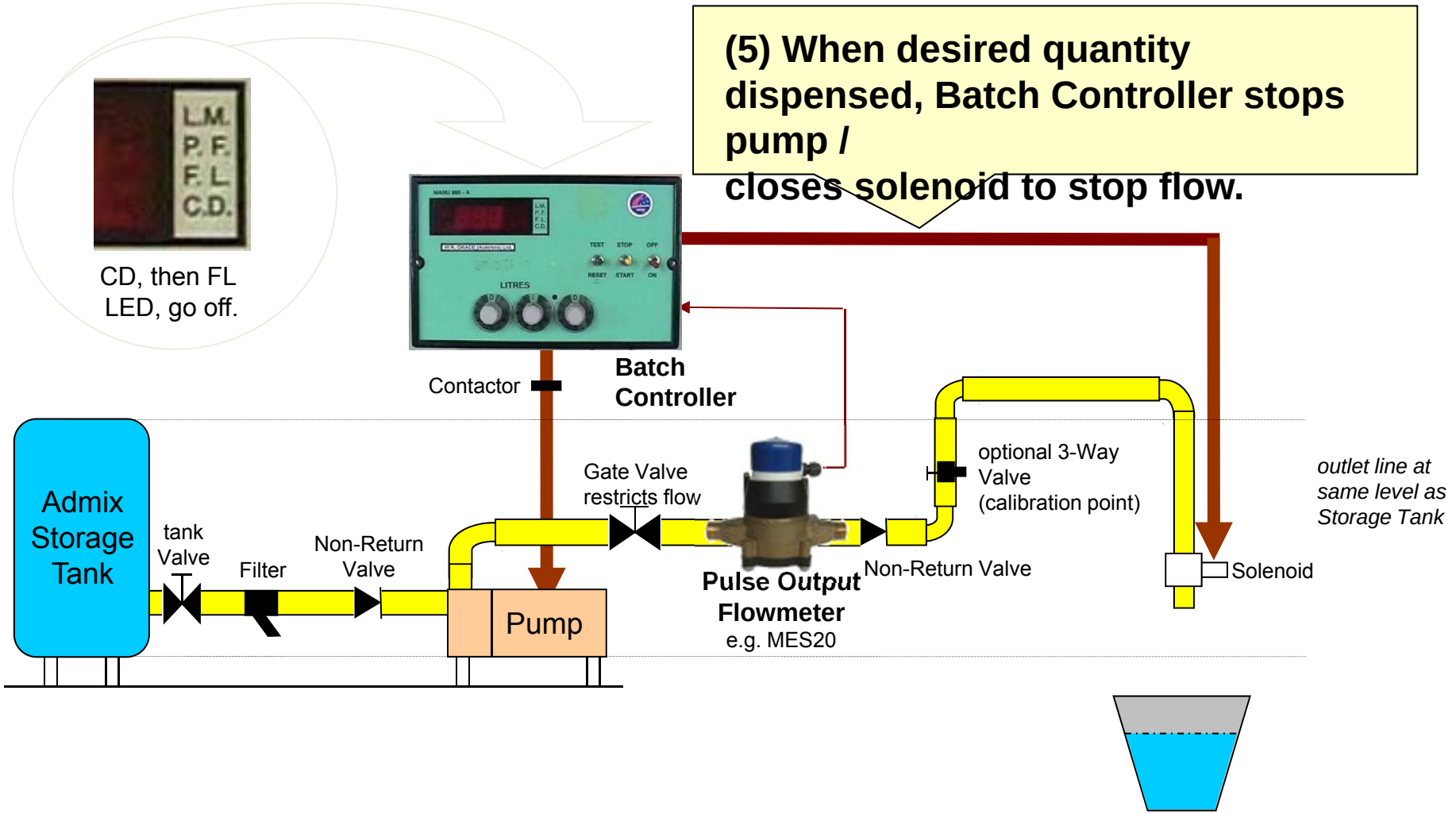
Semi-Automatic Batching



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ME995 Series Batch Controllers - Safety Features

- **LIMIT (LM) LED** - illuminates if:
  - batch cycle reaches locked internal maximum limit, or
  - circuit diagnostics detect internal chip problem, with subsequent automatic shutoff of voltage contact drive.
- **PULSE FAIL (PF) LED** - activates if:
  - no flowmeter pulses arrive within initial 1.5 seconds (variable), or
  - pulses are interrupted or intermittent during batch cycle (fall below variable pulse scanning time, typical 30 Hz) with subsequent automatic shutoff of voltage drive to pump.
- **FLOW (FL) LED** - indicates pulses coming from field flowmeter, or if test is used.
- **CONTACT DRIVE (CD) LED** - output drive activated to pump or solenoi

Audible ALARM sounds:

- momentarily upon completion of batch cycle,
- continuously if PULSE FAIL or LIMIT occurs LEDs are activated or if overflow runs 1000 ml (variable) past selected batch quantity.

Warning: If Contact or Flow LED indicators are on, but contoller is not counting, discontinue use and call for service.

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Batch Controllers – Selection Questions

(1) What is pulses per Litre of the connected flowmeter?

(2) Is Variable Dosage required? If so:

    (3) What dose units do you want?

    (4) What is the maximum doserate?

(5) What batch quantity units do you want?

(6) What is the minimum & maximum batch quantity?

(7) What is the display to show – total dose, or delivered batch quantity?

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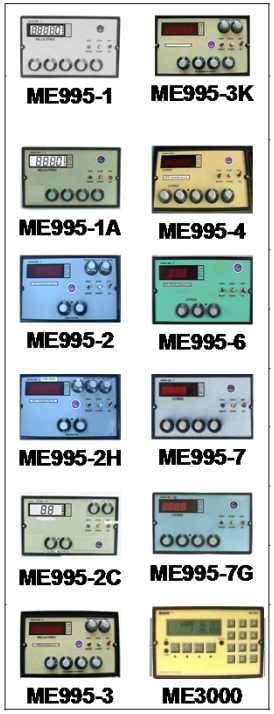
Batch Controllers



	Batch Quantity			Dosage			Display		Input from Flowmeter (2)	
Order Code	Units	Increment	Max Setting	Variable Dosage	Units	Max Setting	Shows	Units	PPL Accepted	K-factor Adjustment
ME995-1	millilitres	10 ml	90000	no	n/a	n/a	batch quantity	millilitres	1000	no
ME995-1A	millilitres	10 ml	9000	no	n/a	n/a	batch quantity	millilitres	1000	no
ME995-2	cubic metres	0.1 cubic metres	9.0	yes	mls x 10 / cubic metre	99x10	total dosage	millilitres	1000	no
ME995-2H	cubic metres	0.1 cubic metres	9.0	yes	mls x 10 / cubic metre	900x10	total dosage	millilitres	1000	no
ME995-2C	cubic metres	0.1 cubic metres	9.0	yes	mls x 10 / cubic metre	99x10	batch quantity	cubic metres	1000	no
ME995-2CH	cubic metres	0.1 cubic metres	9.0	yes	mls x 10 / cubic metre	900x10	batch quantity	cubic metres	1000	no
ME995-3	kg of cement	10 kg	9000	yes	mls x 10 / 100 Kg	99x10	total dosage	millilitres	1000	no
ME995-3H	kg of cement	10 kg	9000	yes	mls x 10 / 100 Kg	900x10	total dosage	millilitres	1000	no
ME995-3K	kg of cement	10 kg	9000	yes	mls x 10 / 100 Kg	99x10	batch quantity	kg	1000	no
ME995-3KH	kg of cement	10 kg	9000	yes	mls x 10 / 100 Kg	900x10	batch quantity	kg	1000	no
ME995-4	Litres	0.01 L	99.990	no	n/a	n/a	batch quantity	Litres	1000	no
ME995-6	Litres	0.1 L	99.9	no	n/a	n/a	batch quantity	Litres	1000	no
ME995-7	Litres	1 L	9999	no	n/a	n/a	batch quantity	Litres	1 - 999	yes
ME995-7D	Litres	0.1 L	999.9	no	n/a	n/a	batch quantity	Litres	1 - 999	yes
ME995-7G	Litres	0.01 L	99.99	(1)	n/a	n/a	batch quantity	Litres	1000	no
ME995-7H	Litres	10 L	99990	no	n/a	n/a	batch quantity	Litres	1 - 999	yes
ME3000	ml, L, KL	from 1ml	9,999,999KL	no	n/a	n/a	batch quantity	ml, L, KL	0.001 - 9999.999	yes

Batch controller options: 110vac supply, 24 VDC supply, external command plug (stop/start/reset), PLC/Computer interfaces, 2 product changeover switch.

Notes - (1) : ME995-7G has as standard a 2-product selection switch with central computer hold, and a -5P interface plug. (2) Examples of 1000 pulse/Litre flowmeters are MES20, MEA15, MEK20.

NEW MODELS: ME995-2CS Direct: MLS / CUBIC METRE m3 Dosage version

ME995-3KS Direct: MLS / KG'S of CEMENT Dosage version

New

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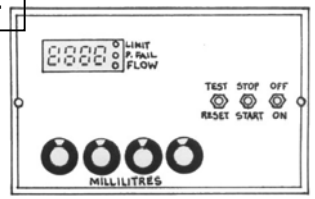
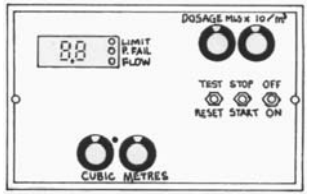
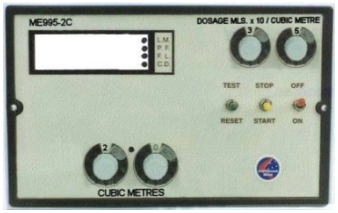
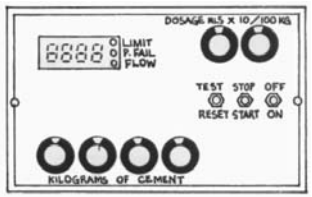
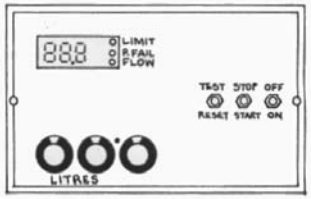
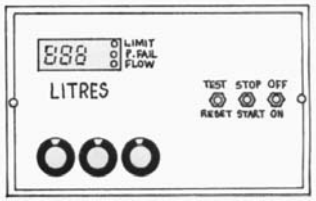
Older Model Batch Controllers – ME188 Series

ME188 Built 1982 to 1994			ME995 Built 1995 to present
ME188-1		superseded by	ME995-1A
ME188-2		superseded by	 ME995-2C
ME188-3		superseded by	ME995-3K
ME188-6		superseded by	ME995-6
ME188-7		superseded by	ME995-7

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ME995-2 Batch Controller

- For use with Manu AMM15, MES20 and MEA15 1000 ppl flowmeters
- **Mainly used in computer/PLC controlled batch plants**

Doserate
Max 99 x10
e.g. 35 x 10 mls/cubic metre

Shows
delivered
Dose in ML

Batch Quantity
up to 9.0,
increment 0.1
e.g. 2.0 cubic metres

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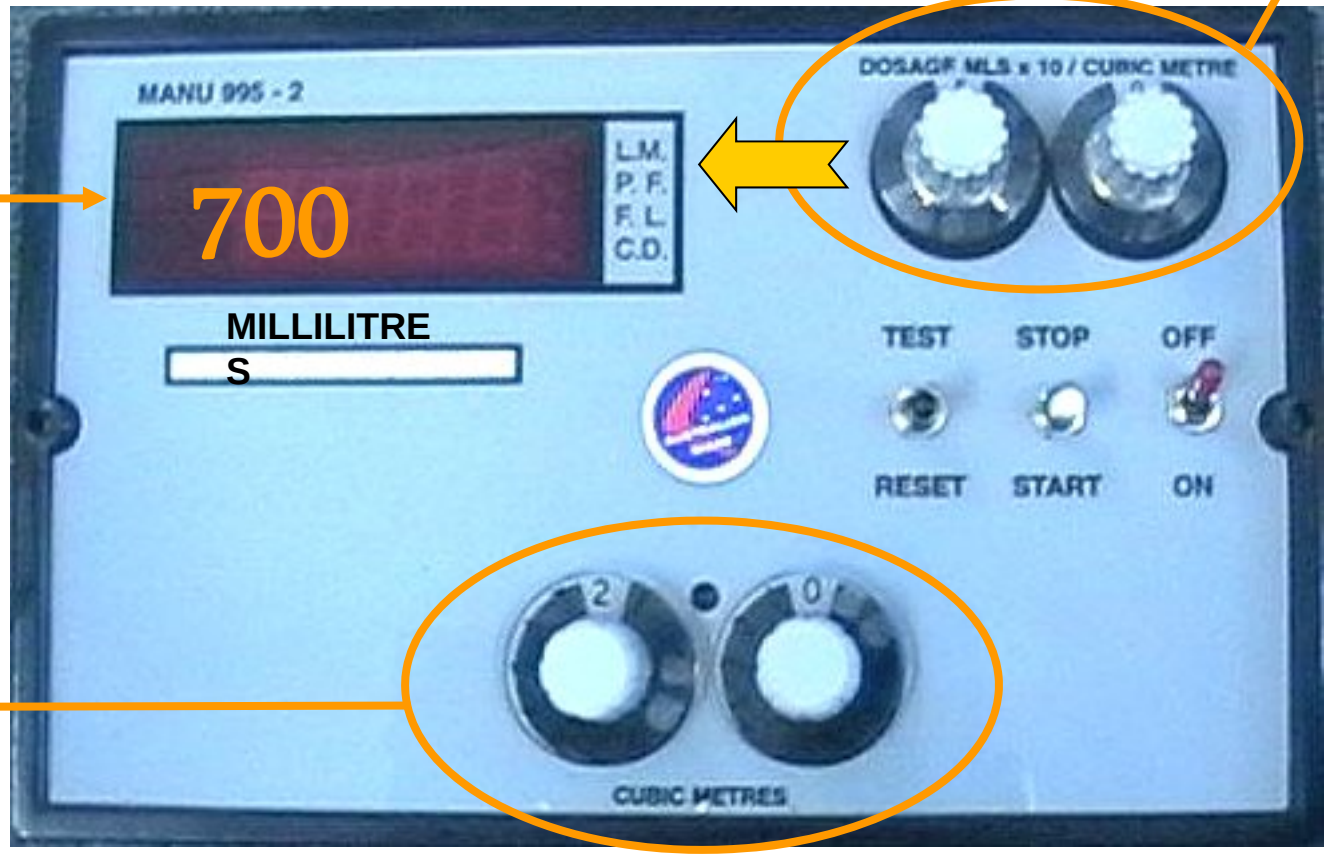
ME995-2 Batch Controller

- For use with Manu AMM15, MES20 and MEA15 1000 ppl flowmeters
- **Mainly used in computer/PLC controlled batch plants**

Doserate
e.g. 35 = 350 mls/cubic metre

Shows
delivered
Dose in ML



Batch Quantity
up to 9.0,
increment 0.1
e.g. 2.0 cubic metres

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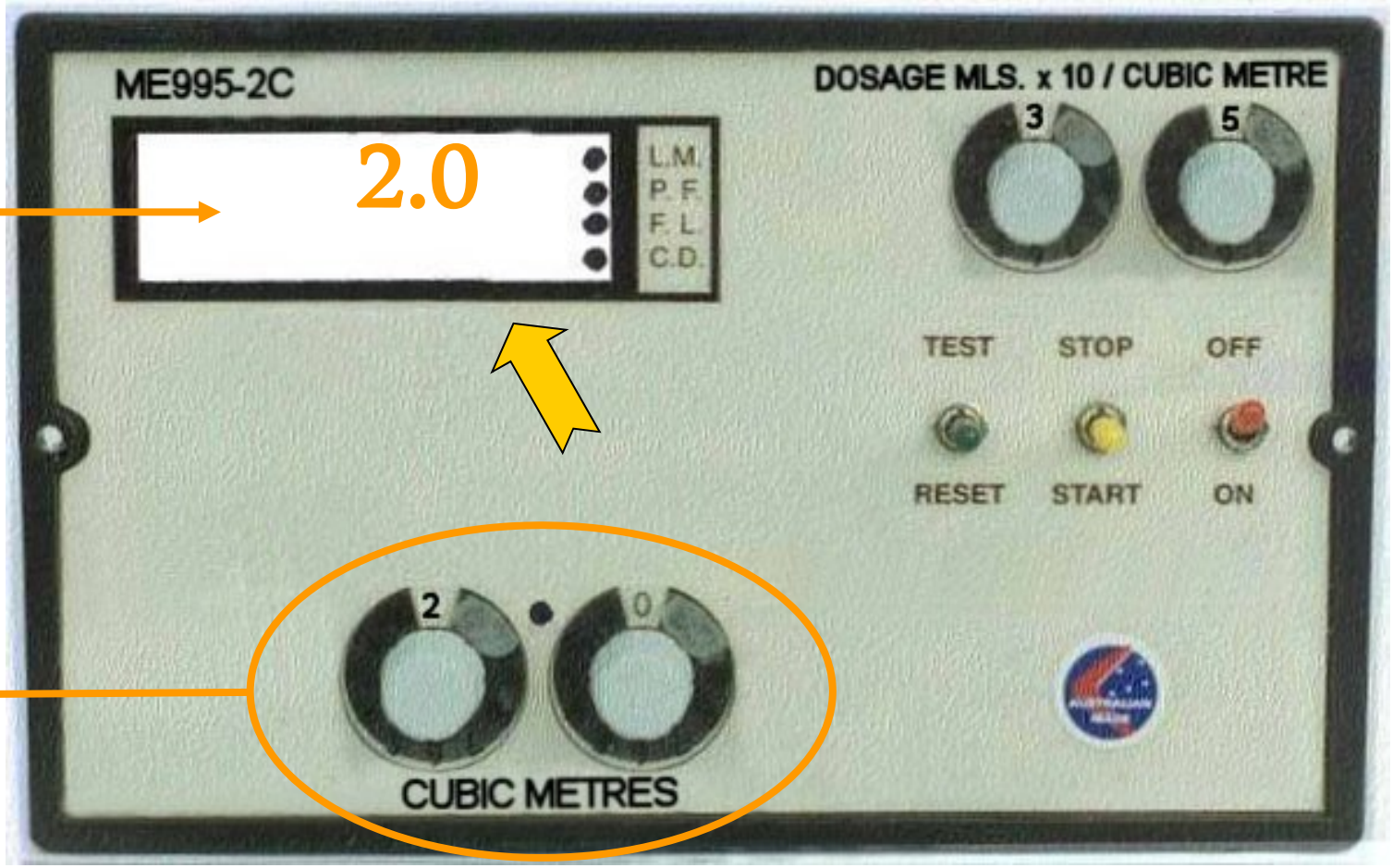
ME995-2C Batch Controller

- For use with Manu MES20 and MEA15 1000 ppl flowmeters.
- **Mainly used in manual batch plants**

Doserate
e.g. 35 = 350 mls/cubic metre

Shows delivered Batch Quantity in cubic metres



Batch Quantity up to 9.0, increment 0.1 e.g. 2.0 cubic metres

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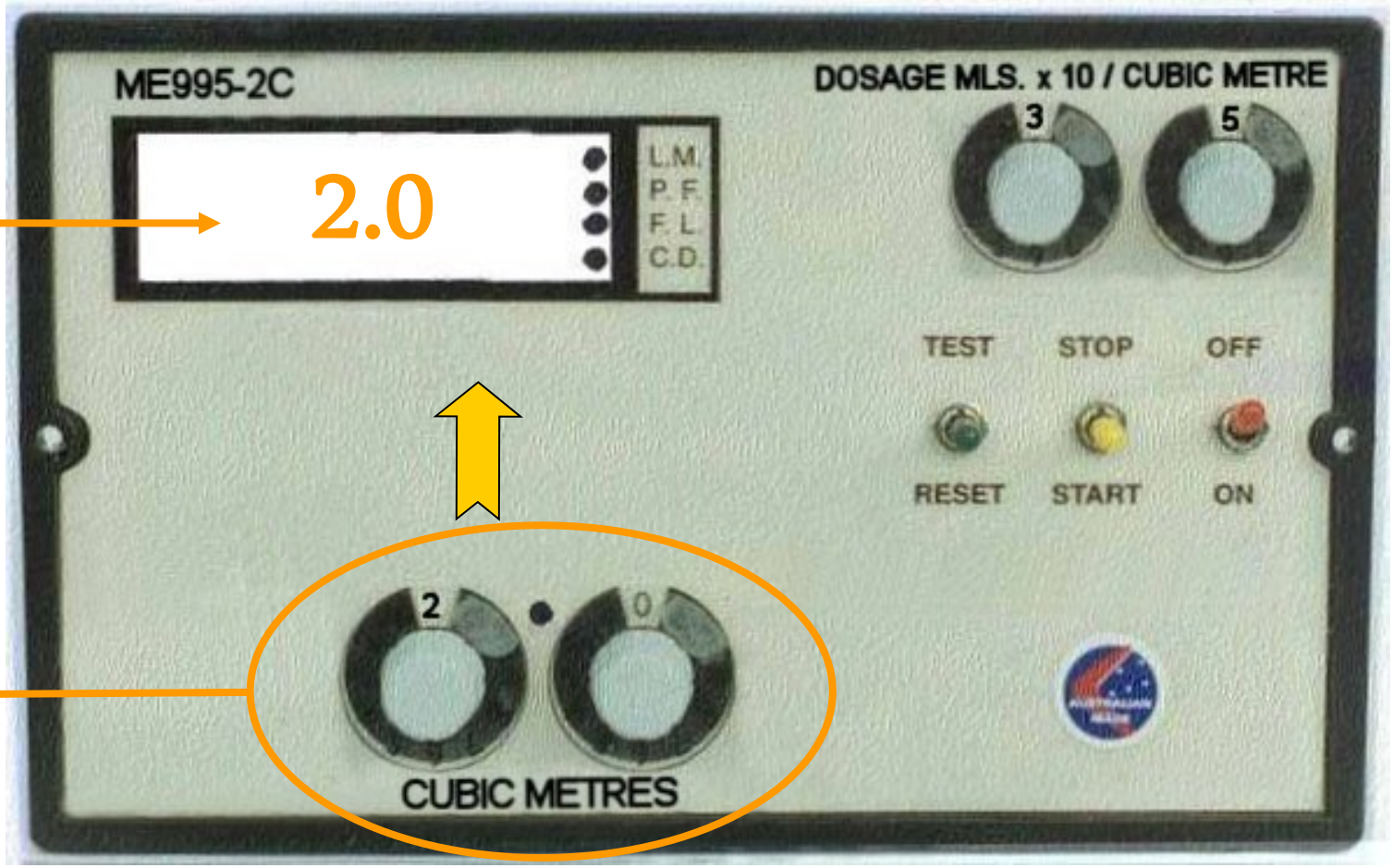
ME995-2C Batch Controller

- For use with ManuFlo AMM15, MES20 and MEA15 1000 ppl flowmeters
- **Mainly used in manual batch plants**

Doserate
e.g. 35 = 350 mls/cubic metre

Shows delivered Batch Quantity in cubic metres

Batch Quantity up to 9.0, increment 0.1 e.g. 2.0 cubic metres



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ME995-3 Batch Controller

Ideal for Computer plants to compare volumetric display in MLs.

- 5 Digit LED display.
- 4 x LED status indicators.
- Variable doserate selection.
- Display counts in total millilitres of dosage.
- Preact function and preset maximum limit
- Missing pulse detection
- Interchangeable with earlier ME188 models
- For use with Manu MES20, MEA15 1000 ppl flowmeters.
- Optional PLC and computer interface.
- Mainly used in computer/PLC controlled batch plants

		Display	
		shows	units
*	ME995 - 3	total dosage	ml
	ME995 - 3K	batch quantity	kg

Doserate
mls x 10 per 100kg
max 99 x 10

Shows Total Dosage in ML

Batch Quantity
up to 9000, increment 10

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ME995-3 Batch Controller

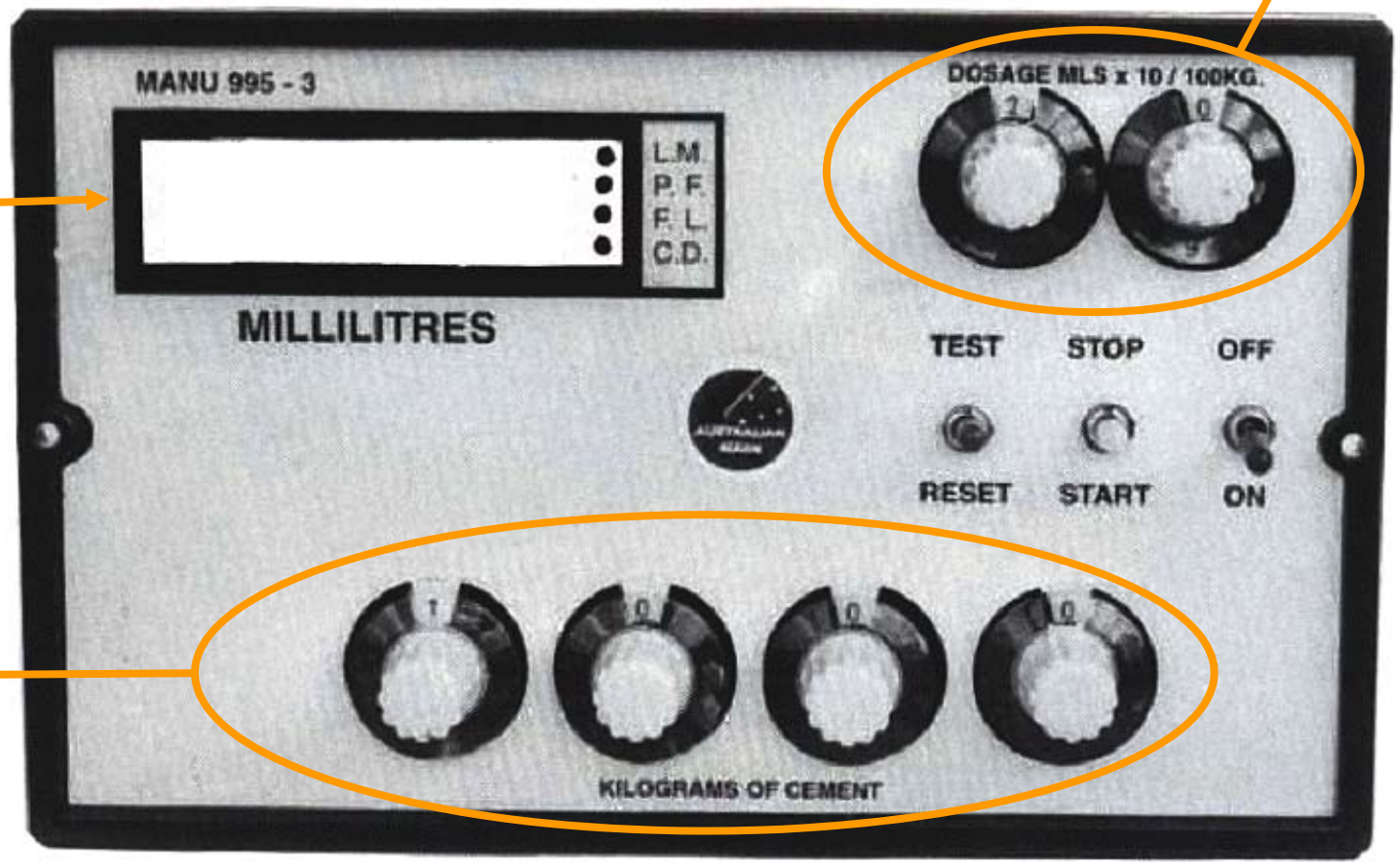
For use with Manu AMM20 and MES20 1000 ppl flowmeters

- **Mainly used in computer/PLC controlled batch plants**

Doserate
Max 99 x10
e.g. 20 x 10ml/100kg

Shows
delivered
Dose in ML

Batch Quantity
up to 9000,
increment 10
e.g. 1000 kg



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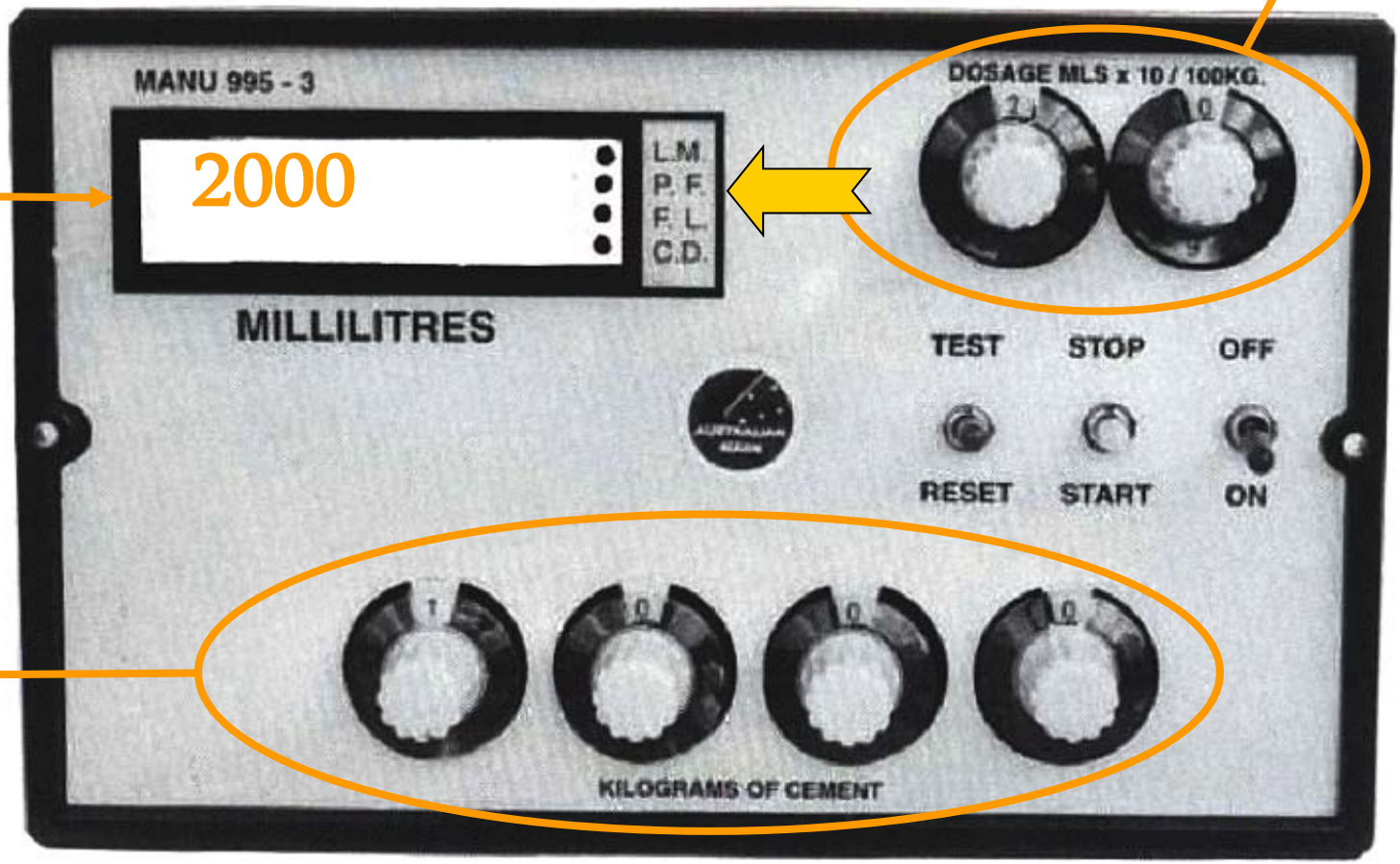
ME995-3 Batch Controller

- **Mainly used in computer/PLC controlled batch plants**

Doserate
e.g. 20 = 200ml/100kg

Shows
delivered
Dose in ML



Batch Quantity
up to 9000,
increment 10
e.g. 1000 kg

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ME995-3K Batch Controller

- Variable doserate blending preset batch controller
- Rotary knob selector switches, for easy select of:
  - Doserate (top 2 selectors)
  - Batch Quantity (bottom 4 selectors)
- 4 Digit LED display - Display counts upward in 10 kg lots to kilograms of cement selected
- 4 x LED status indicators.
- Preact (overflow deduct) function
- Preset maximum batch limit
- Missing pulse detection
- Contact output drive is via 1 (or optionally 2) relays
- For use with Manu MES20, MEA15 1000 ppl flowmeters
- Optional PLC and computer interface
- **Mainly used in manual batch plants**

MLs x 10 per 100KG
Max. Setting: 99x10

Shows Batch Quantity in KG

Batch Quantity up to 9000, increment 10

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ME995-3K Batch Controller

For use with ManuFlo AMM20 and MES20 1000 ppl flowmeters

Doserate
max 99 x 10
e.g. 20 x 10mls/100kg

Shows delivered
Batch Quantity
in kg

Batch Quantity
up to 9000,
increment 10
e.g. 1000 kg cement.

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ME995-3K Batch Controller

Doserate
e.g. 20 = 200ml/100kg
Total for 1000kg batch = 2000ml

Shows delivered
Batch Quantity
in kg

Batch Quantity
up to 9000,
increment 10
e.g. 1000 kg cement

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ME995-4 Batch Controller

For use with Manu AMM20 and MES20 1000 ppl flowmeters

Shows delivered Batch Quantity in Litres

Batch Quantity up to 99.990, increment 0.01 L e.g. 3.000 Litres

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ME995-6 Batch Controller

For use with ManuFlo AMM20 and MES20 1000 ppl flowmeters

Shows delivered Batch Quantity in Litres

Batch Quantity up to 99.9, increment 0.1 L e.g. 1.0 Litres

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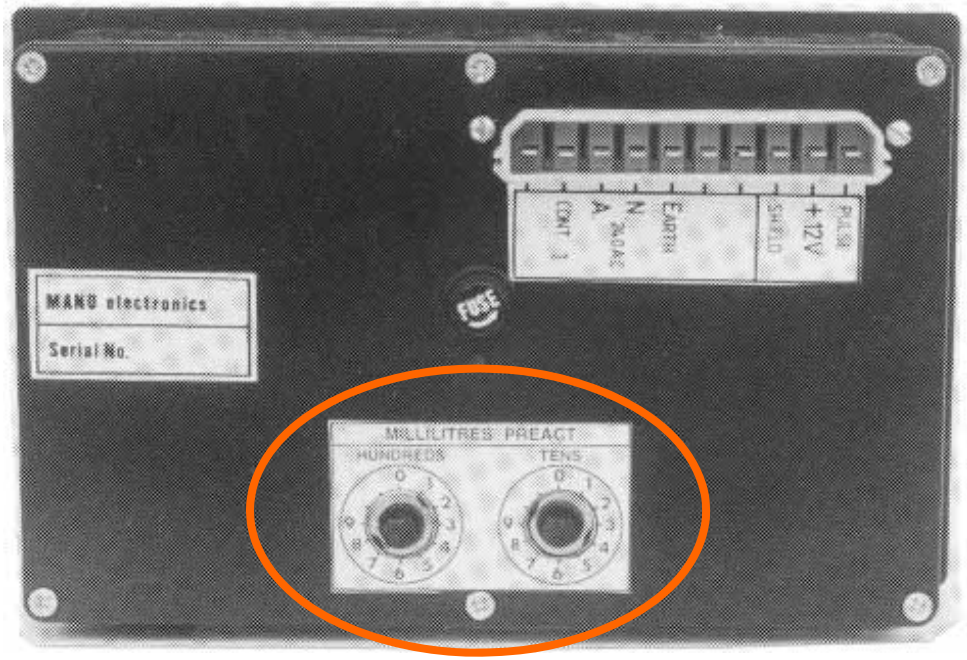
Batch Controller Pre-act Explained

PREACT: Calibrating inflight overflow deduct:

- Is via **two rotary knobs** marked (on ME995-3K) “HUNDREDS” and “TENS" of mls located at the rear of the Batch Controller.
- As the batch display will indicate total kilograms of cement at the selected doserate, a calculation must be performed to convert the overrun displayed into actual overflow millilitres of dose.



PREACT KNOBS

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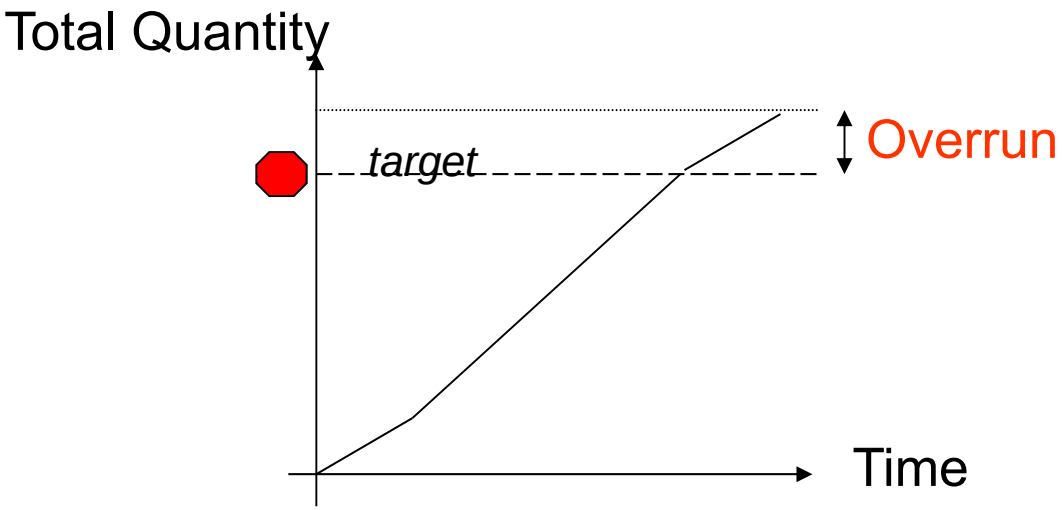
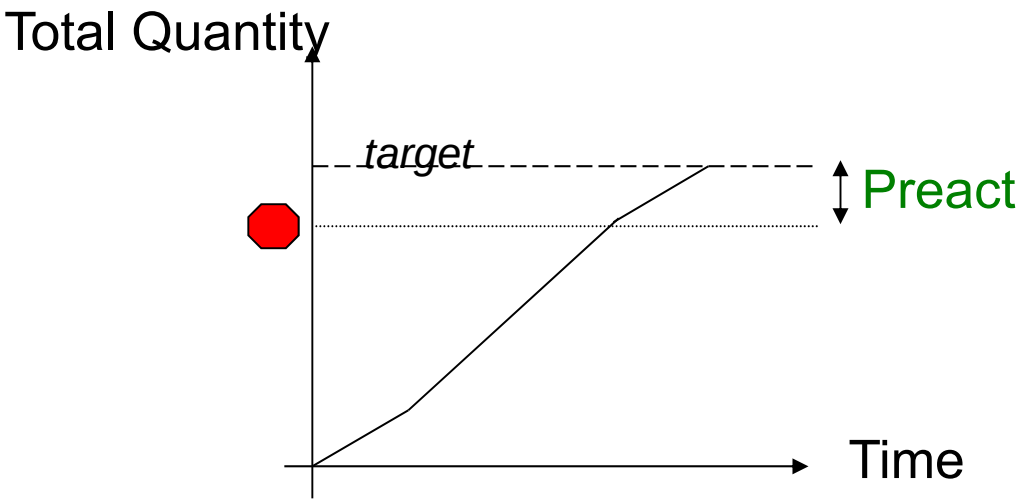
Batch Controller Pre-act





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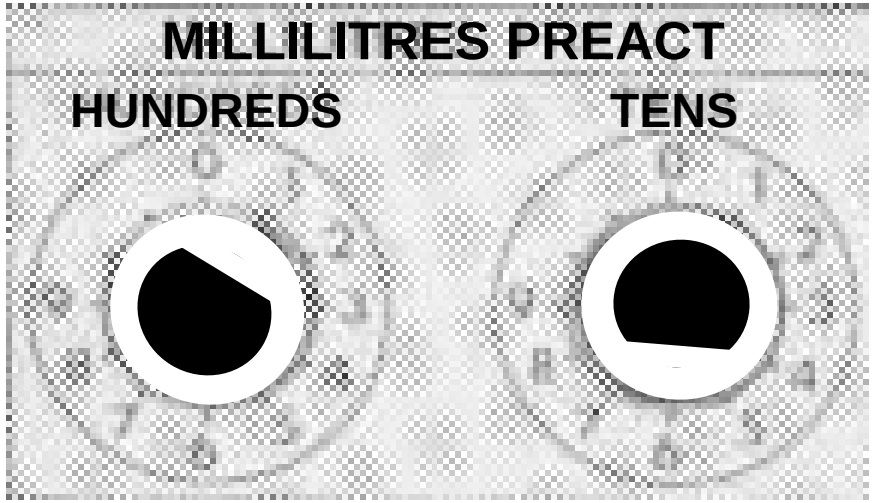
Batch Controller Preact

ME995-3K, Example 1

- Doserate was **10 x 10 mls/100kg** (i.e. 100 mls/100 kg,
- Total kgs cement load selected was 2000kg,
- Actual quantity delivered shown on display was 2060kg (**60 kgs** over at the selected doserate).

$$\text{Dose Overflow} = \underbrace{60\ \text{kg}}_{\text{overbatch}} \times \underbrace{\frac{10\text{x}10\ \text{mls}}{100\ \text{kg}}}_{\text{Doserate}} = \frac{60 \times 100\ \text{mls}}{100} = 60\ \text{mls} = 60\ \text{mls overflow}$$

Set the preact to HUNDREDS=0 and TENS=6 (0x100 + 6x10 = 0 + 60 = 60 mls)



When doserate is set to 10x10 mls/100kg, then it is easy to calculate preact:

Preact, in mls =
qty delivered, in kg (shown on display) –
qty requested, in kg (dialed by operator)

i.e. 2060 – 2000 = 60 mls preact

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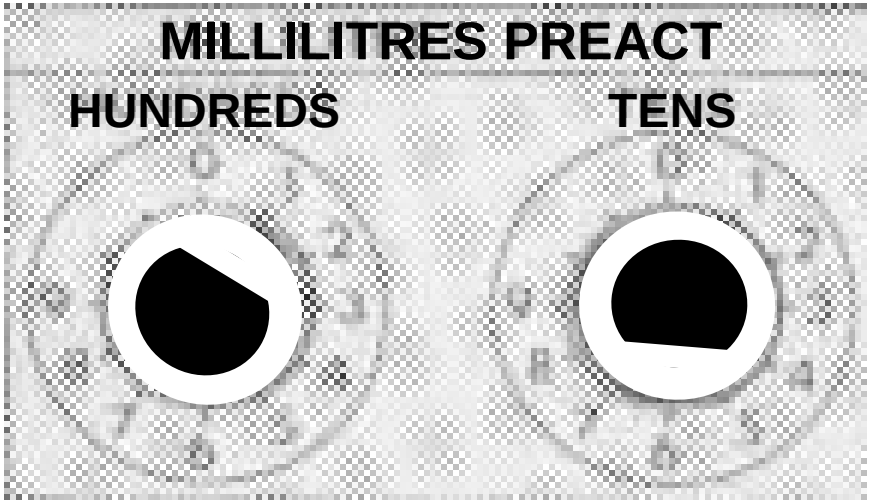
Batch Controller Preact

ME995-3K, Example 2

- Doserate was **27 x 10 mls/100kg** (i.e. 270 mls/100 kg),
- Total kgs cement load selected was 2000kg,
- Actual quantity delivered shown on display was 2060kg (**60 kgs** over at the selected doserate).

$$\text{Dose Overflow} = \underbrace{60\ \text{kg}}_{\text{overbatch}} \times \underbrace{\frac{27\text{x}10\ \text{mls}}{100\ \text{kg}}}_{\text{Doserate}} = \frac{60 \times 270\ \text{mls}}{100} = 162\ \text{mls} = \sim 160\ \text{mls overflow}$$

Set the preact to HUNDREDS=1 and TENS=6 (1x100 + 6x10 = 100 + 60 = 160 mls)



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Batch Controller Preact

ME995-3K, Example 3

- Doserate **38 x 10 mls/100kg**.
- Total kgs cement load selected was 3150 kg.
- Actual quantity delivered shown on display was 3290 kg.

What should preact be set to?

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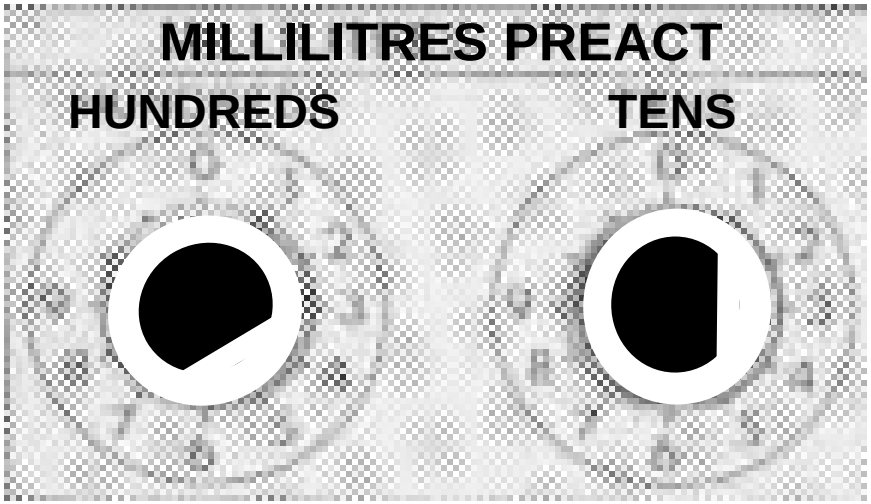
Batch Controller Preact

ME995-3K, Example 3

- Doserate **38 x 10 mls/100kg**.
- Total kgs cement load selected was 3150 kg.
- actual quantity delivered shown on display was 3290 kg (i.e. overran **140 kg**).

$$\text{Dose Overflow} = \textbf{140 kg} \times \frac{\textbf{38x10 mls}}{\textbf{100 kg}} = \frac{140 \times 380 \text{ mls}}{100} = 532 \text{ mls} = \sim 530 \text{ mls overflow}$$

Set the preact to HUNDREDS=5 and TENS=3 (5x100 + 3x10 = 500 + 30 = 530 mls)



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Batch Controller - Service Adjustments to Safety Timings and Limits for ME995

INITIAL START (T2):

CAUTION

- Once start toggle is pressed, controller allows 1.5 seconds for pulses to arrive from the flowmeter.
- If there are no pulses within the 1.5 second time period, controller will shut down the output voltage drive, and will turn on the pulse fail LED and alarm warnings.
- In some applications, the 1.5 second delay may not be long enough, due to slow opening solenoids or slow pressure buildup pumps etc.
- The initial start time period can be increased by soldering a tantalum capacitor in parallel with the standard capacitor value, found on the rear of the PCB.

FLOWRATE (T1):

- If pulses do arrive within the allocated initial start time, the controller then locks in pulserate safety.
- Most ManuFlo Batch Controllers have a standard 30 counts per second (30Hz) pulserate safety setting.
- If the pulses from the flowmeter drop below the 30Hz, the controller will shut down the output voltage drive, and turn on the Pulse Fail LED and alarm warnings.
- The 30Hz standard setting is typical with concrete admixture dispensing systems using MES20 (1ml/1 pulse) flowmeters, where if the flowrate drops below 30 millilitres per second the pulse fail safety will activate. T
- The flowrate (frequency) minimum setting can be adjusted by soldering a capacitor in parallel with the standard capacitor found on the PCB.

Physical mods not needed for ME3000 (is programmable).

Note: The flowrate safety timing is changed if required:

- because of viscosity changes due to seasonal temperatures, or
- by very low flowrate applications, or
- when using flowmeters other than the most commonly used (MES20 20mm 1 pulse/1ml output flowmeter) with Batch Controllers that have K-factor (ppl) calibration.

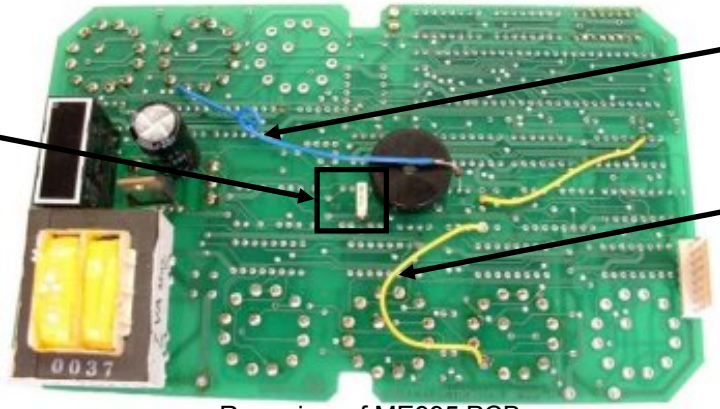
When controller/flowmeter systems are ordered, we supply the safety timing setting to suit your chosen flowmeter, thus always providing the safest possible watchdog system.

BATCH LIMIT (LM):

- The maximum permissible batch is determined by the internal limit value.
- The factory setting is always at the maximum value.
- The limit setting can be reduced by simply desoldering the limit lead wire (connected to the rear of the rotary switch solder pads) and resoldering to set the desired quantity.

DOSERATE LIMIT (DRLM), on Doserate models only:

- The maximum permissible doserate is determined by the internal limit value.
- The factory setting is always at the maximum value.
- The limit setting can be reduced by simply repositioning the limit wire at the rear of the rotary switch solder pads.



Rear view of ME995 PCB

Note: Setting are programmable in the ME3000.

To access PCB, unscrew 6x screws located at rear of controller case.

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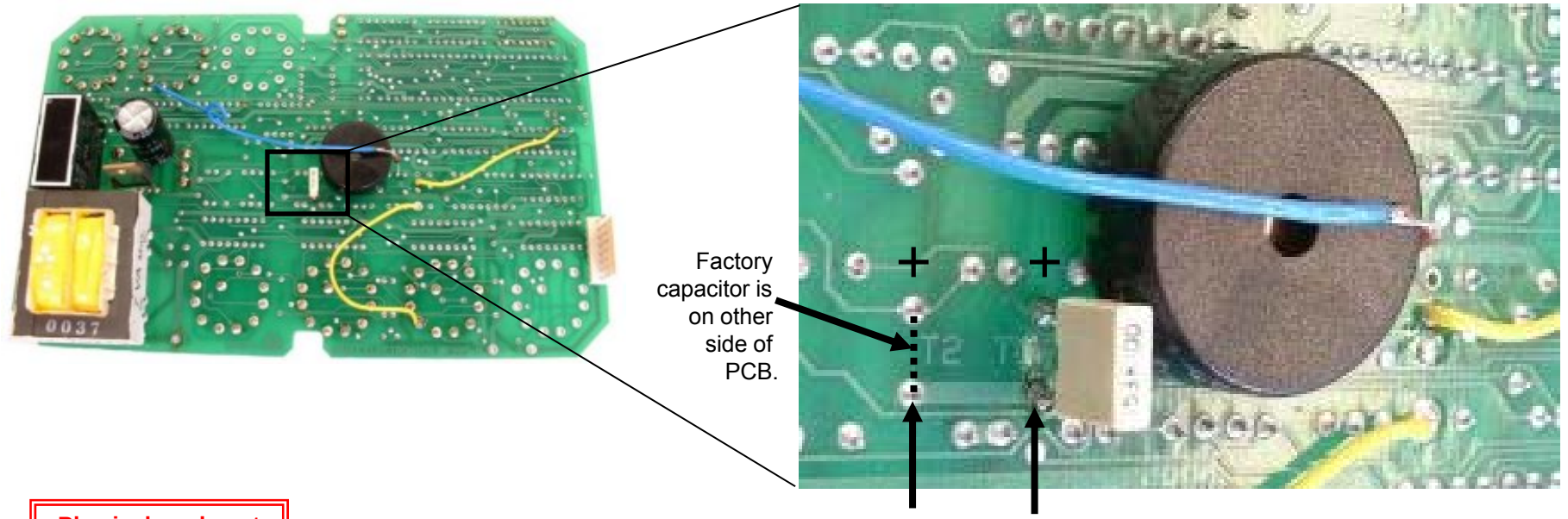
Batch Controller – T2 (Initial Start) and T1 (Flowrate) Timing

CAUTION


Factory capacitor is on other side of PCB.
Initial Start capacitor T2.
Add Tantalum capacitor in parallel to adjust.
T1 flowrate capacitor.
Add capacitor in parallel to adjust.

Physical mods not needed for ME3000 (is programmable).

Standard factory set values are T2: 1 µF capacitor, T1: 0.02 µF.
Use the following tables to change factory set values.

Table 1. INITIAL START TIMING (T2)

Extra Capacitor value	Extra timing
1 µF	1.5 seconds
2 µF	3.0 seconds
3.3 µF	4.1 seconds
4.7 µF	5.8 seconds

Table 2. FLOWRATE TIMING (T1)

Total Capacitor value	Frequency Hz (pulses per second)
0.01 µF	30 Hz
0.02 µF	25 Hz
0.03 µF	20 Hz (low flowrate MES20)
0.1 µF	07 Hz
0.2 µF	03 Hz
1.0 µF	0.2 Hz (PSM20-T flowmeters)

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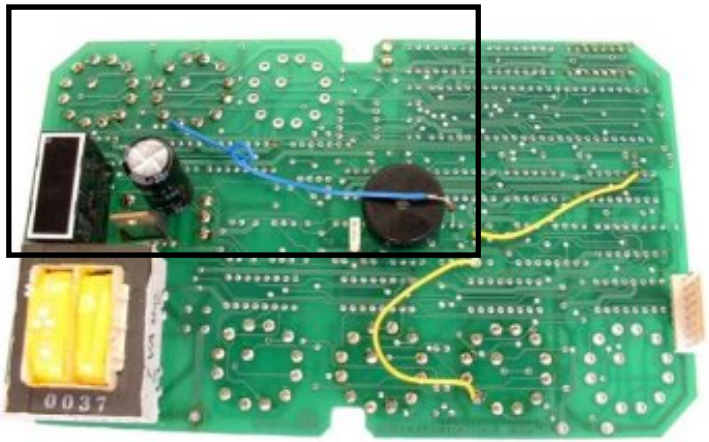
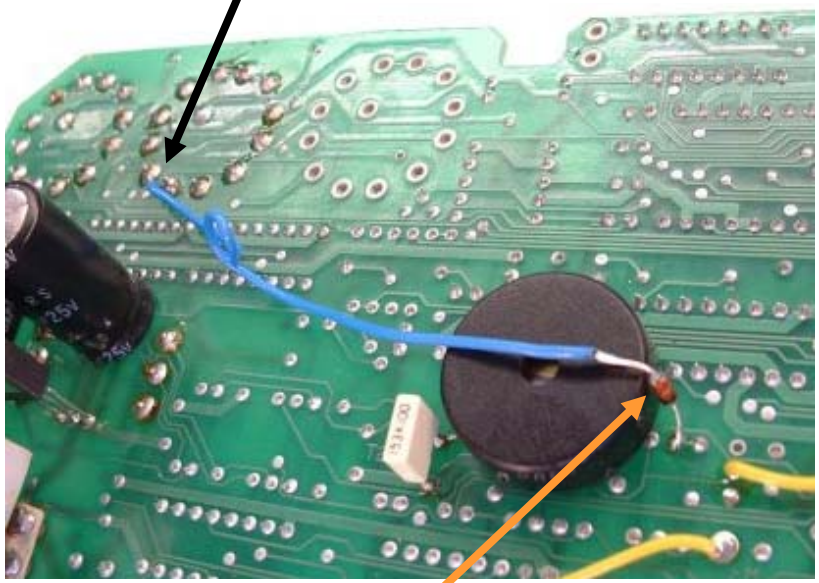
Batch Controller – DRLM Dose Rate Limit (Doserate Models Only)



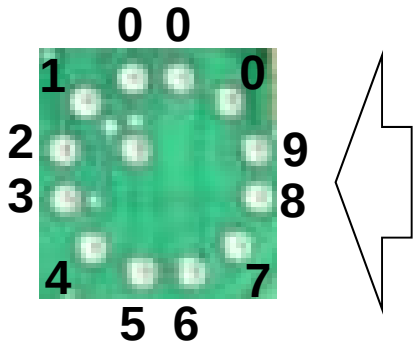
Doserate Limit wire is connected to the right-most installed Doserate dial (as seen on this view).

To change doserate limit, move this end of the DRLM limit wire to a new pad on the rotary.



1N4148 signal diode

Doserate Limit Values, According to DRLM Limit Wire Position



		ME995 model							
		-2	-2H	-2C	-2CH	-3	-3H	-3K	-3KH
	units ->	mls/m3	mls/m3	mls/m3	mls/m3	mls/100kg	mls/100kg	mls/100kg	mls/100kg
	0	0	0	0	0	0	0	0	0
P	1	100	1 000	100	1 000	100	1 000	100	1 000
o	2	200	2 000	200	2 000	200	2 000	200	2 000
s	3	300	3 000	300	3 000	300	3 000	300	3 000
l	4	400	4 000	400	4 000	400	4 000	400	4 000
t	5	500	5 000	500	5 000	500	5 000	500	5 000
l	6	600	6 000	600	6 000	600	6 000	600	6 000
o	7	700	7 000	700	7 000	700	7 000	700	7 000
n	8	800	8 000	800	8 000	800	8 000	800	8 000
	9	900	9 000	900	9 000	900	9 000	900	9 000

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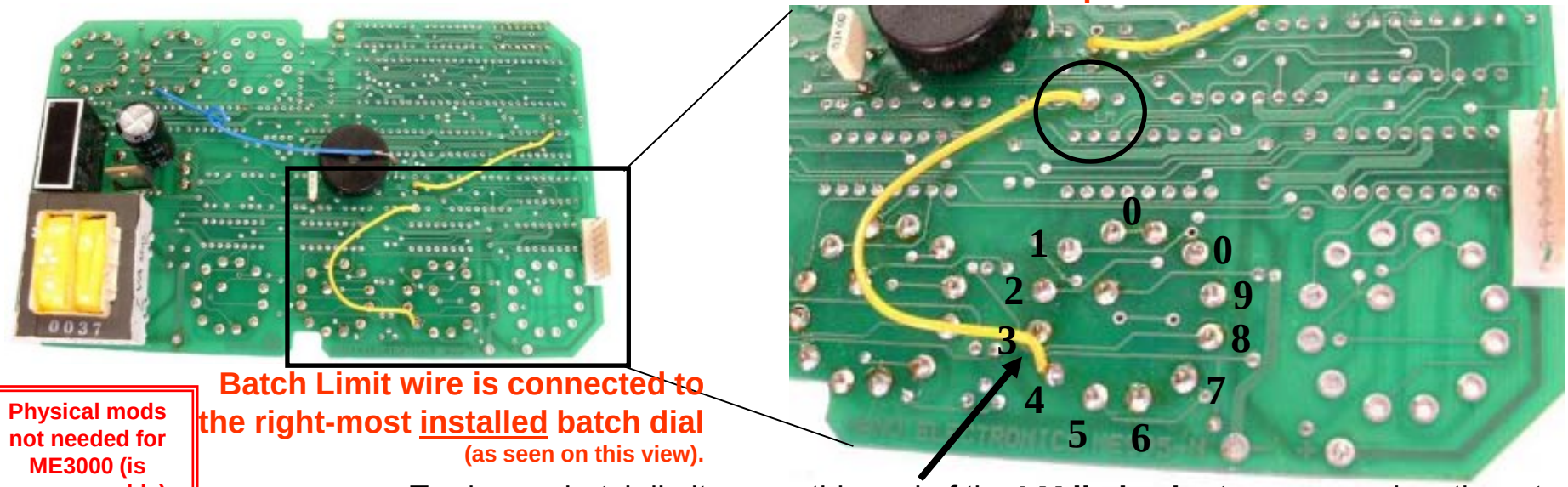
Batch Controller – LM Batch Limit

CAUTION

Start pad of Limit Wire is marked LM



Physical mods not needed for ME3000 (is programmable).

Batch Limit wire is connected to the right-most installed batch dial (as seen on this view).

To change batch limit, move this end of the **LM limit wire** to a new pad on the rotary.

Batch Limit Values, According to LM Limit Wire Position

		ME995 model														
		-1	-1A	-2	-2H	-2C	-2CH	-3	-3H	-3K	-3KH	-4	-6	-7	-7D	-7H
	units ->	mls	mls	m3	m3	m3	m3	kg	kg	kg	kg	L	L	L	L	L
	0	0	0	0.0	0.0	0.0	0.0	0	0	0	0	0.000	0.0	0	0.0	0
P	1	10 000	1 000	1.0	1.0	1.0	1.0	1 000	1 000	1 000	1 000	10.000	10.0	1 000	100.0	10 000
o	2	20 000	2 000	2.0	2.0	2.0	2.0	2 000	2 000	2 000	2 000	20.000	20.0	2 000	200.0	20 000
s	3	30 000	3 000	3.0	3.0	3.0	3.0	3 000	3 000	3 000	3 000	30.000	30.0	3 000	300.0	30 000
l	4	40 000	4 000	4.0	4.0	4.0	4.0	4 000	4 000	4 000	4 000	40.000	40.0	4 000	400.0	40 000
t	5	50 000	5 000	5.0	5.0	5.0	5.0	5 000	5 000	5 000	5 000	50.000	50.0	5 000	500.0	50 000
l	6	60 000	6 000	6.0	6.0	6.0	6.0	6 000	6 000	6 000	6 000	60.000	60.0	6 000	600.0	60 000
o	7	70 000	7 000	7.0	7.0	7.0	7.0	7 000	7 000	7 000	7 000	70.000	70.0	7 000	700.0	70 000
n	8	80 000	8 000	8.0	8.0	8.0	8.0	8 000	8 000	8 000	8 000	80.000	80.0	8 000	800.0	80 000
	9	90 000	9 000	9.0	9.0	9.0	9.0	9 000	9 000	9 000	9 000	90.000	90.0	9 000	900.0	90 000

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Plumbing Install Guide (Admixtures)

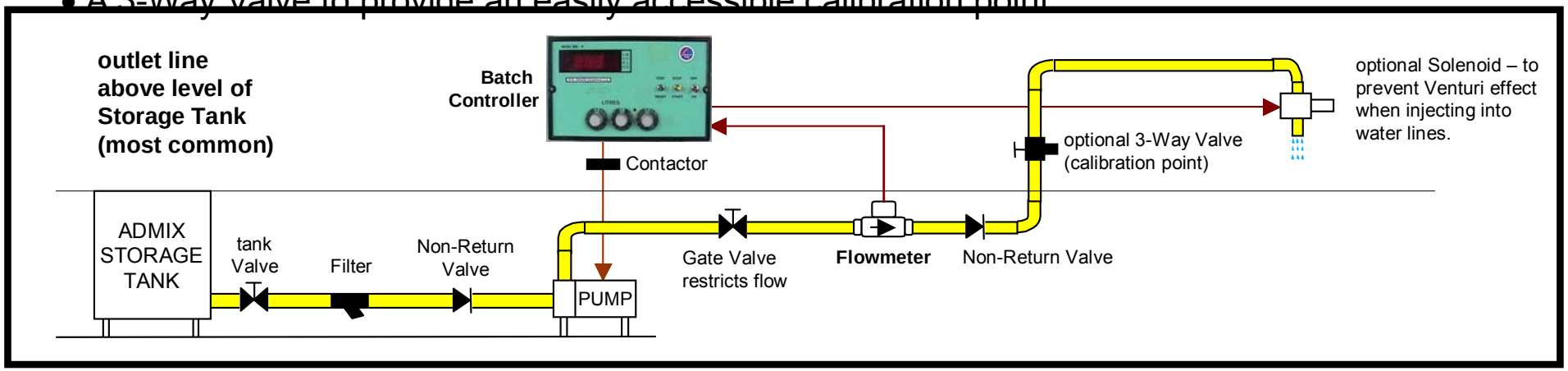
Typical admixure dispensing system setup with MES flowmeters

If the outlet point is above the top of the storage tank (the most commonly used setup),
you will at least require the following equipment:

- A pump,
- Non-return valves or spring loaded check valves (12psi),
- Flow restriction gate or ball valve, a flowmeter with pulse output and,

optionally:

- A solenoid valve (air-assisted ball valve type) for instant shut off of flow, recommended to prevent the Venturi effect when injecting into water lines, but may not be required if the installation has reasonable head height.
- A 3-Way Valve to provide an easily accessible calibration point



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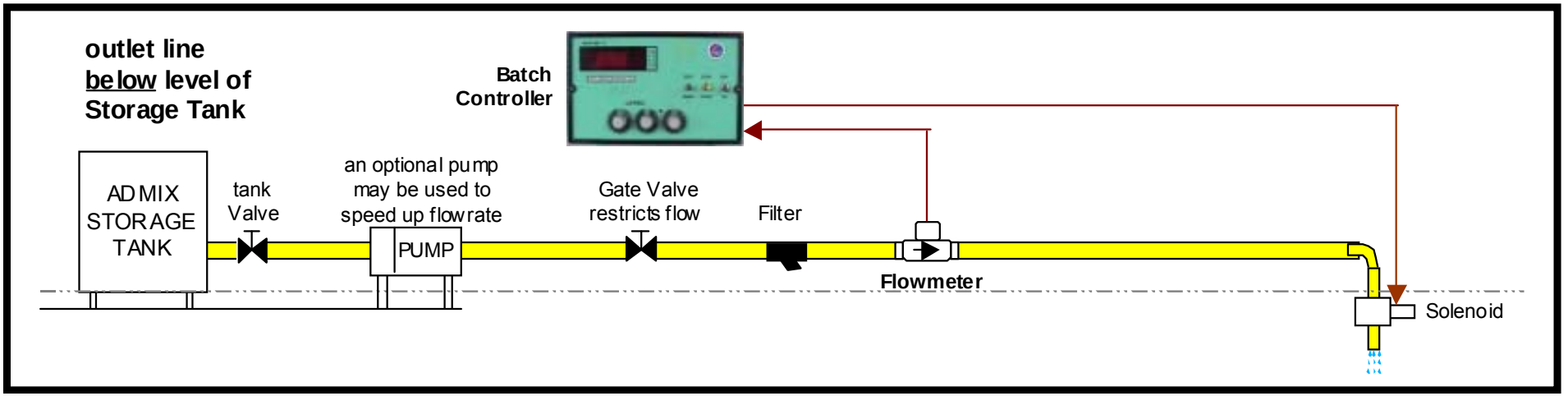
Plumbing Install Guide (Admixtures)

If the outlet point is <u>below</u> the level of the storage tank, then the equipment you will at least require is:

- a flow control solenoid valve,
- a flow restriction gate or ball valve, and
- a flowmeter with pulse output.



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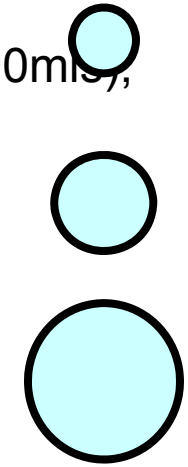
Plumbing Install Guide (Admixtures)

Selection of Pipeline Diameters (for MES20 20mm)



► For low flowrates and small batch quantities of liquid (approx < 2000ml/), use ½" diameter pipe or hose (after the flowmeter).

► For medium to high flowrates, use ¾" to 1" diameter pipe.

► For very high flowrates, use 1¼".

NOTE: Pipeline can be

- Flexible reinforced hose (NOT flexible expandable soft hose)
- Rigid PVC
- Metallic

- For higher density chemicals, higher head requirements or injecting into water lines, consider positive displacement pumps to maintain or increase flowrates.

- For faster flow, consider larger flowmeters e.g. MES25, MES32, MES40. or Magflows

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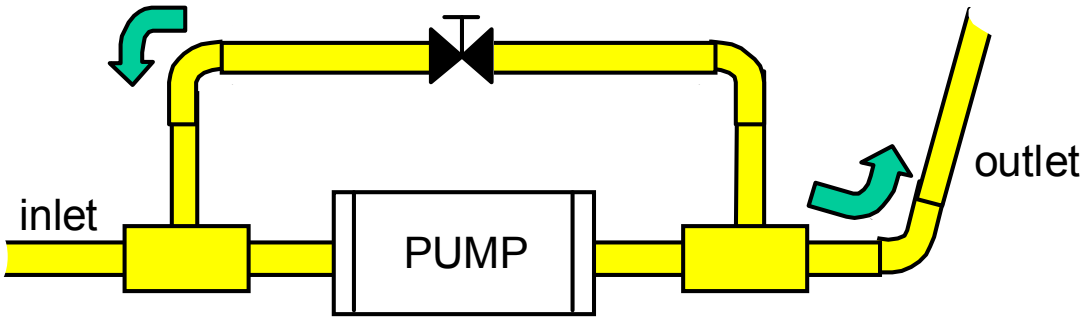
Pump Selection -Admixtures

- When 20mm MES20 flowmeters are used with fluids of specific gravity 1 - 1.25, then use centrifuge pumps of 0.5 - 1 horse power (e.g. 1" Onga 413 or Davey XF171 pumps. When using larger capacity flowmeters, a proportionally larger pump will apply). A flowrate upto 1.0 Litre per second can be achieved, depending on head height. You can restrict pump speed without damage to these type of pumps.

- For higher density fluids, positive displacement (PD) pumps or other types of positive displacement pumps (e.g. Mono) are more suitable. Because of the pressures generated by PD pumps, the flow is best controlled by using an inlet-to-outlet bypass flow valve to recirculate the flow line.



Note: This method of restriction of flow eliminates air being counted by MES flowmeters when admix storage tank is empty.

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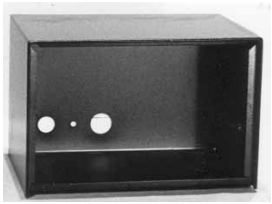
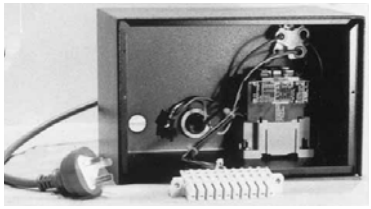
Batch Controller Housing Boxes

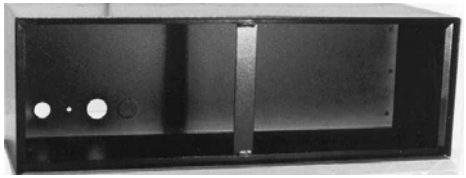


SHB - SINGLE HOUSING BOX

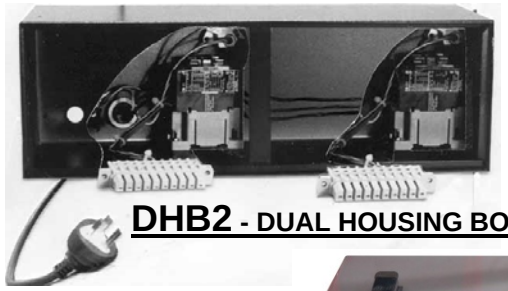


SHB1 - SINGLE BOX WIRED

- The SHB/DHB housing boxes are for wall or bench mounting ME995 Batch Controllers.
- Metal black powder-coated paint finish.
- These boxes are also available fully wired with 110 or 240vac 15amp industrial contactors, pump plug-in 240vac power entries, power cord and 10-pin Weidmuller mating plug.
- Also available in a terminal strip entry version.



DHB - DUAL HOUSING BOX



DHB2 - DUAL HOUSING BOX

Order Code	Description
SHB	Single metal box (houses one ME995)
SHB1	Single, with contactor, pump outlet
SHB2	Single, with 2 contactors, 2 pump outlets
DHB	Dual metal box (houses two ME995s)
DHB2	Dual, with 2 contactors, 2 pump outlets
DHB3	Dual, with 3 contactors, 3 pump outlets
-T	Terminal strip entry (in lieu of outlets)

HB2500/2510 - WATERPROOF ENCLOSURES

Order Code

HB2500	IP65 Enclosure.
HB2510	**IP65 Enclosure with S/S316 hinges**

New Product!

Options

-SSR	Start/Stop/Reset command buttons.
-C240	Contactor, internally wired. 15 Amp, 240vac, 1phase.

Select a good viewing AND operating position for the Batch Controller.

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Batch Controller Housing Box - Use

Do not install ME995 / ME3000 with SHB/DHB boxes outside exposed to rain or washdown areas ,,,use the HB2510 IP65 waterproof/dust proof box

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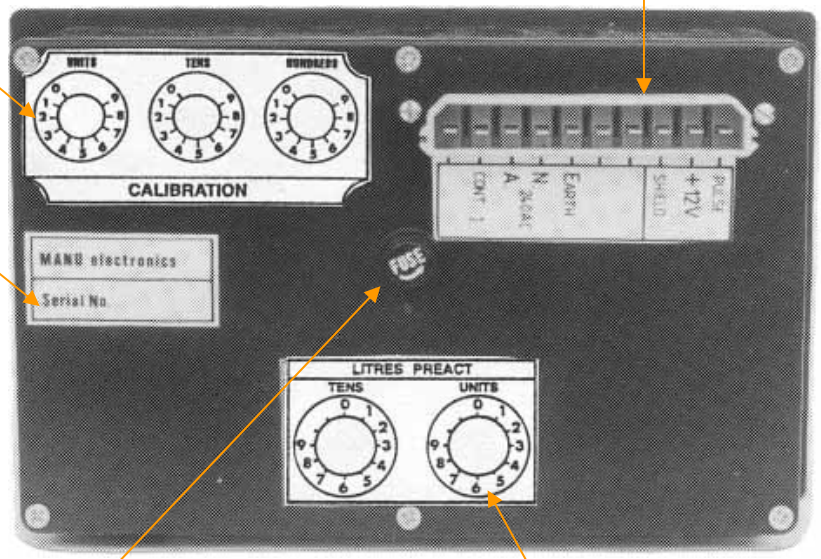
ME995 Series Batch Controllers - Connections

Calibration knobs (only on ME995-7 and ME995-7D), to set to flowmeter's K-Factor (the pulses/Litre).

Weidmuller 10-pin recepticle – changeover and replacement is instant with no rewiring necessary.

Serial No.



Fuse

Preact knobs - to adjust for overrun.

SPECIFICATIONS

Power supply	220-260 vac (optional 110 vac or 12-24 VDC)
Output to flowmeter	12 VDC up to 100mA
Relay outputs	Max. 240 vac, 30 VDC 1 Amp
Frequency input	5 KHz: x1 input, 340 Hz: x17 inputs
Display	7 segment LED (14mm H)
Connection	10-pin Weidmuller mating plug and socket
Fuse	1 Amp (5 x 20mm case)
Batch selection	Visual rotary select switches
Batch commands Rear of ME995-7 controller	Push toggle switches
Mounting	Panel mount
Instrument housing	ABS hi-impact case
External dimensions	206 L, 130 H, 90 D mm
Panel cutout	190 L, 122 H mm
Weight	1 kg

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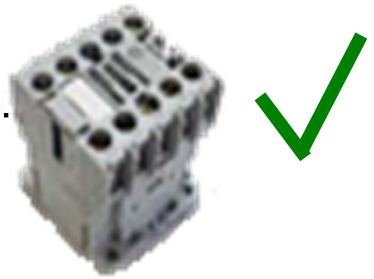
Batch Controller Wiring

- Remove the detachable Weidmuller **10-pin plug** from the rear of Batch Controller.
- Connect the **flowmeter signal cable** into the 10pin Weidmuller plug. When wiring the flowmeter, use 2-core shielded cable (use more cores if wiring more flowmeters) - this will supply the flowmeter with 12VDC from the Manu Batch controller.
- Wire the **240VAC supply cables**.
- Wire the **Active/contact drive, Neutral and Earth from the solenoid valve** or return from the external contactor if driving a pump. If starting a pump, make sure the contactor is of sufficient amperage rating to handle the pump current draw (e.g. 10 Amps for Onga413 pump).
- **Don't use cheap plug-in relays in your installation** – they cannot handle pump surge currents and can stick/fuse. Must have industrial grade contactors
  (available from ManuFlo: **Order Code C240**, rated 3kW 1.5hp).



- Consider wiring an **override button** (N.O. with spring return) for manual batching or top-up of admix, which will be counted by the controller display.
- **Power up the system**. Reset and start a number of times to prime the system, until fluid appears at the outlet line and the Batch Controller digits begin counting.

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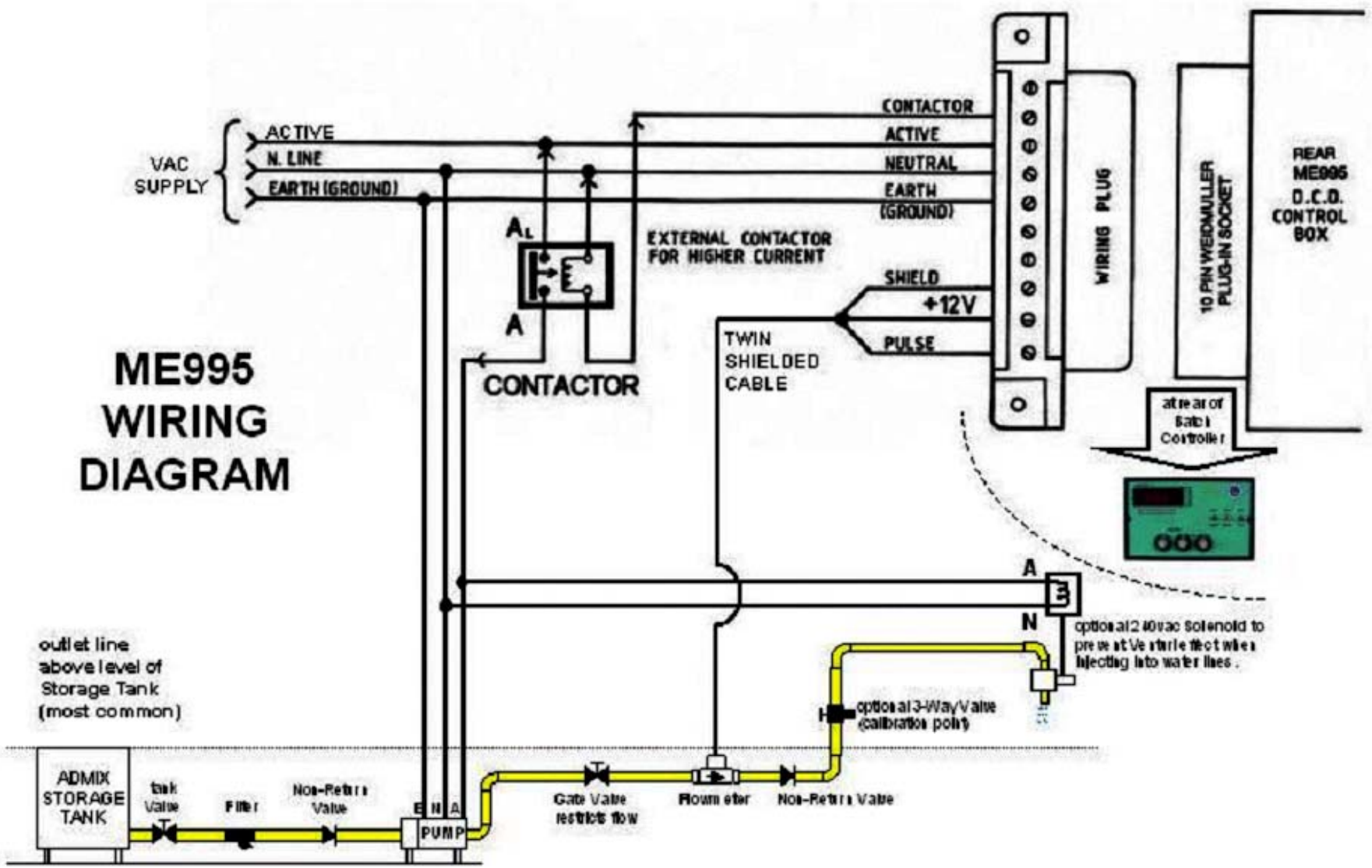
ME995 Batch Controller Wiring



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Batch Controller Calibration Test

Volumetric Calibration Test should be performed when commissioning insta

- place a **calibrated vessel** at the discharge point
- on the Batch Controller, **select an amount** of liquid e.g. 1000 mls.
- press Reset, then Start to **batch** the quantity
- at the calibrated container, **check** that the amount dispensed is as requested.

An overflow may occur due to the inability of the pump to stop instantly. The amount of overflow will depend on how fast the liquid is being dispensed and/or the closing time of the solenoid valve. The Batch Controller will count the overflow as part of the displayed total dispensed.

- if the system is totally controlled via PLC/Computer, overflow will be adjusted by the computer; otherwise,
- where a ME995 series Batch Controller is fitted with a Preact, simply set the Preact to the amount of overflow i.e

overflow = (actual amount dispensed, as shown on the Batch Controller display) minus (amount requested).

If required:

- slow down flow velocity by using a restriction gate valve;
- avoid over-batching by using the Preact function, or installing a quick-acting solenoid valve.

Note: If the flow is restricted excessively, Batch Controller Pulse Fail circuitry will shut down the system for safety reasons, in which case open up the restriction gate valve.

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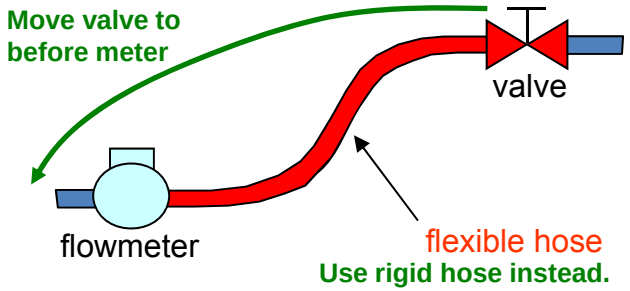
Batch Controllers – Common Operational Issues

Common causes of batch overrun:

- Pump slow to stop. To fix:
  - ❑ adjust preact.

- Flowmeter is clutching, or chamber is worn out.
  Clutching can cause more liquid to be dispensed than is measured, but if significant then the Batch Controller will Pulse Fail consistantly.
  - ❑ clean or replace chamber.

- After flowmeter, any restriction (e.g. valve) at end of flexible hose will allow expansion of hose line in hot conditions, introducting a contraction/expansion “squeegee” effect that affects the amount dispensed at the end of a batch.
  - ❑ move restriction to before flowmeter;
  - ❑ use rigid/reinforced hose/pipe.



- Fluid particles block meter.
  - ❑ clean measuring chamber;
  - ❑ install filter prior to flowmeter (800 – 1000 micron recommended).

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Batch Controllers - Maintenance

- A calibration check should be performed periodically (say every 6 months).

- Return for service after 5-10 years, especially for manual plants.

- In winter, liquid can thicken because of the cold, and so can flow slower. If Pulse Fail continually happens in winter on a ME188/ME995 series Batch Controller, THROTTLE UP PUMP SPEED or fit a 0.01 uF capacitor to change flowrate timing T1.

Note: The ME3000 Batch Controller is programmable, and so does not require any hardware modification.

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Batch Controllers – Troubleshooting

IMPORTANT

Questions to ask the batcher upon a batching problem:

- Which LEDs are on?
- Describe what faults are eviden

If there is repeated pulse fail,
ensure truck is removed from under the sock to
avoid chemical overdose.

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Batch Controllers – Troubleshooting

Incorrect Batching

1. The selector knob number dials on the Batch Controller may not be aligned correctly, and therefore do not correspond to the rotary switch numeric values.

2. To test, set all numbered dials to the zero position, then press the RESET toggle. The alarm should beep momentarily. This will indicate correct alignment of dials. If alarm does not beep, this indicates incorrect alignment of number dials.
   - To rectify, remove the grey-colored cap from each dial, unscrew knobs and pull knobs off.
   - Check that the exposed switch black shaft flat sides are horizontal. If not, turn shafts horizontal and refit the numbered dial knob to the zero number setting.
   - For dosage switches, position to zero and push the TEST button. Digits should not count (except in the ME995-3 model). If digits count, then remove grey knob and check the numbered dial alignment.
3. If batch controller is tested and found to be operating correctly, then proceed to checking and testing flowmeter components.

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Batch Controllers – Troubleshooting

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTION
o No power to batch controller, displays not on	o Blown fuse or holder not tight o +12vdc and O.V. shorted o No main power supply	o Check fuse, tighten fuse holder (at rear of controller) o Check wiring, rear of controller & at flowmeters, replace cables. o Check power supply, check wiring
o Pulse fails at start of batch	o Air pocket o Restriction gate valve closed o Empty liquid tank o Pump not turning o Solenoid valve not opening o Seized flowmeter chamber o Flowmeter pulsehead faulty o Signal cable cut or bad joint	o Prime line by shorting output drive (C=Contact & A=Active) o Open gate valve o Check liquid level o Check and service pump o Check and service solenoid valve or non return valve stuck closed o Service and clean flowmeter chamber, replace if required o Replace with new pulsehead, or connections corroded. o Check signal cable
WARNING: In any pulse-fail or repeat malfunction condition, remove the truck mixer from the sock loading point.		

NOTE: In winter, liquid may flow slower causing Pulse Fail. We recomme
• Opening up the restriction valve
or
• Fitting the capacitor to change Batch Controller T1 timing

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Batch Controllers – Troubleshooting

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTION
o Pulse fails during batch cycle	o Flowrate too slow o Flowrate too fast o Blocked filter restricting flow o Measuring chamber clutching	o Open restriction gate valve or increase flowrate pulse fail timing capacitor (see service guide). o Chamber clutching, slow down flowrate via restrictor valve. Check flowmeter specs for performance operating range o Cleanout filter o Cleanout chamber or replace o Clean, service or replace
o Display digits count slowly after batch complete	o Non return valve faulty (jammed open)	o Clean, service or replace
o Batch target display counter above batch selection	o Flowrate too fast, excessive overflow	o Turn down gate valve to restrict flowrate or set preact (overflow deduct) function to compensate (ME995 models) o Reduce delivery pipe diameter
o During calibration test more admix collected than indicated	o Flowmeter chamber part missing o Chamber excessively worn, liquid is slipping through without registration o S.G. below 1.0 o MES20 under excessive pressure with AEA slippery admix	o Check flow chamber, check O rings are seated correctly (MEK20/MES20 roller bush or O ring) o Replace with new chamber, recheck calibration o Replace chamber and restrict flowrate or recalibrate via controller (certain models only) or recalibrate via card o Place restriction valve after pump and prior to flowmeter
NOTE: After servicing any flowmeter, always perform a volumetric calibration test. Make sure glands are sealed, pulse cable is lopped downward, and meters are under cover and protected from water ingress.		

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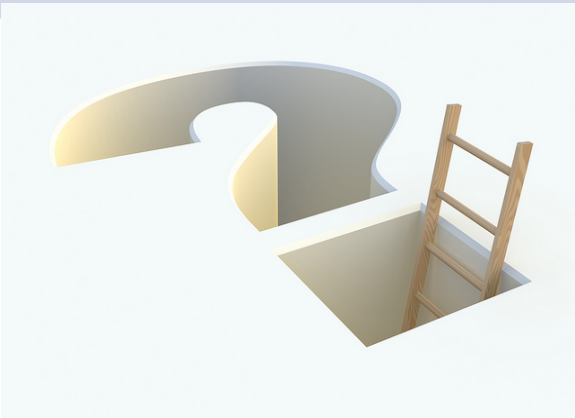
Batch Controllers – Troubleshooting

PROBLEM	POSSIBLE CAUSE	SUGGESTED SOLUTION
o Less admix collected than displayed	o Possible syphoning effect if fed (mixing) into flowing water line o Liquid flows backward after batches	o Fit ball valve solenoid or do not feed into flowing water line, or check valve o Non-return valve faulty, service or replace
o Controller starts counting when power switched on, does not stop at batch complete	o Active and contact power drive short circuited o Contactor sticky or fused	o Short circuit on PCB, check PCB or replace o External pump contractor relay fused or need higher ampere rating, replace contractor
o Controller not counting but flow and/or contact drive LED's are on	o Controller malfunction, IC failure	o Replace controller, ring ManuFlo for urgent advice
o Controller counts although pump off (contact drive LED off)	o Dried out main electro capacitor	o Replace electrolytic capacitor (Pre ME995 units)
o Controller counts up a batch cycle but no admixture delivered	o Flowmeter (MES) measuring air	o Can occur with positive displacement pumps. Fit a recirculation line on inlet/outlet of pump. See install guide brochure.



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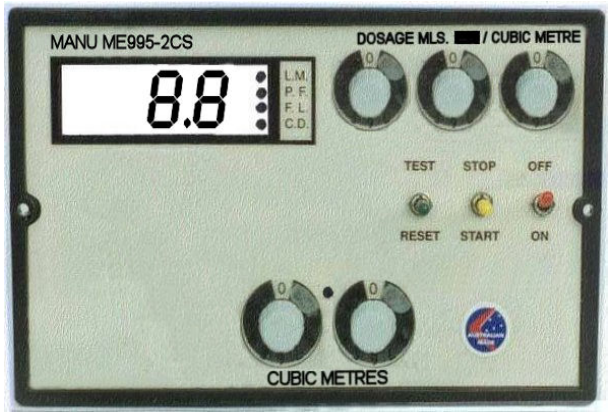
New ME995 Models

No x10 Scaling on Doser Dials

ME995-2CS



Straight mls /m3 selection

ME995-3KS

Straight mls /100kg selection

- **3 dials for direct selection of doserate**
- **No longer mls x10 calculation required**
- **First dial is fixed at zero**

Introduced due to some batchers miscalculating with the doserate mls x 10 option.

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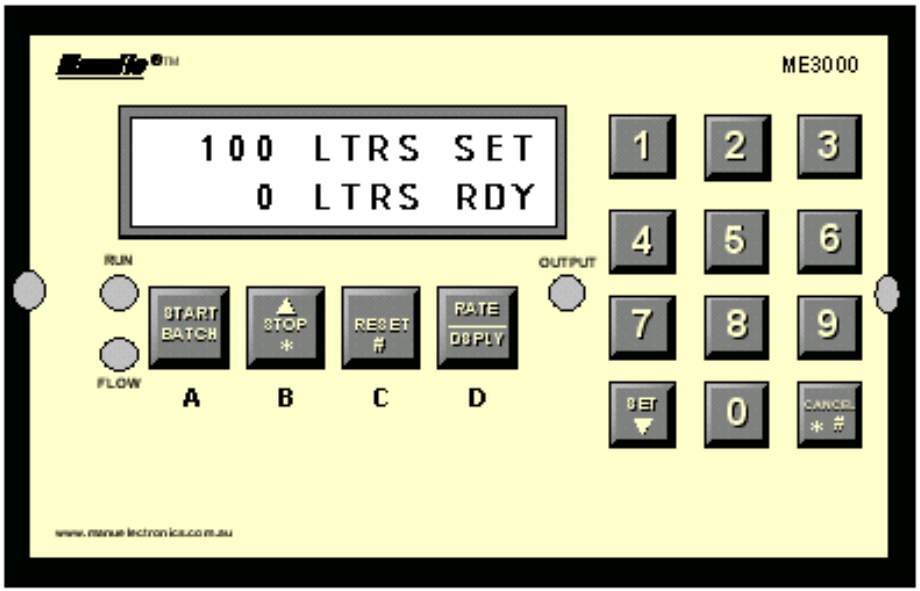
ME3000
Next Generation ManuFlo Batch Controller

- Single channel.
- 2 line x 16 character LCD display with batch set and target
- Alarm messages shown on LCD display
- More safety features
- Internal event log
- RS232 output to printer/computer
- Fully programmable
- Can use with any flowmeter size



See User Manual for full instructions: http://www.manuelectronics.com.au/pdfs/ME3000_uman.pdf

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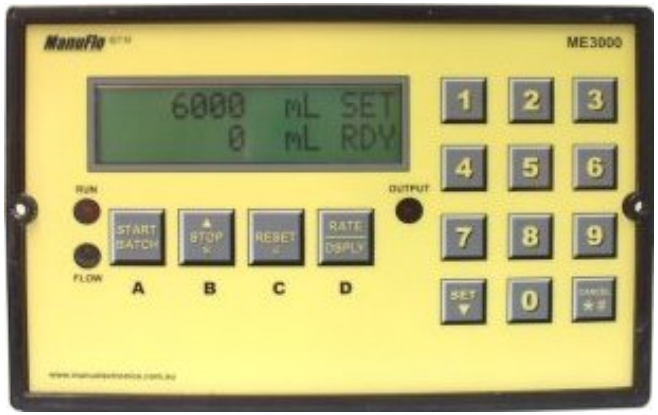
ME3000 – Next Generation ManuFlo Batch Controller

Displays
- Set/Run
- Flowrate
- Backflow
- Grand Total (resetable)
- Batch Id (resetable)
- 6 digits



Alarms
- Batch Limit
- Max Flow Limit
- Min Flow Limit
- Backflow
- Output Rate
- Overbatch

Features
- Event log (500 batches)
- Run/flow/output indicator LEDs

Features (Optional)
- Computer control interface
- RS232 interface for printing batch tickets and/or downloading event log
- Front Port RS232 for easy access

Configuration
- Calibration I/P
- Output Pulse
- Max output rate
- Max. batch limit
- Max. backflow
- Min. flow alarm level
- Max. flow alarm level
- Start delay
- Stop delay
- 4-20 mA current o/p
- Preact overrun
- Time & date
- Date last calibrated

ManuFlo ®™

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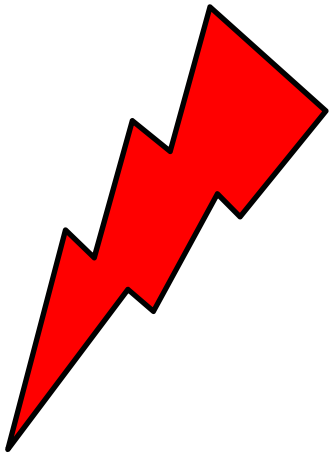
ME995/ME3000

NEW Configuration Updates

Now available with:



- 24Vac or 24VDC powered options
- With open contact output drive (to drive any voltage)
- ME995-2CS and ME995-3KS models

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Portable Kits - Batch Controller / Flowmeter Systems

5. Concrete Batch Plant Admix System Kit

- **Batch Controller:-**
- **order ME995 model of your choice, to suit**
- **Batch Controller Housing Box: order SHB, DHB, HB2500 options to suit.**
- **Flowmeters: -**
- **order MES or MM flowmeter to suit.**
- **Pump:-**
- **order pump to suit**
- **Ancillary Kit:-**

with filter, gate valve, non-return valve, elbows & camlocks.

Cable:-

order length of cable from flowmeter to Batch Controller.

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